

JPRS-TND-86-010

19 MAY 1986

Worldwide Report

**NUCLEAR DEVELOPMENT  
AND  
PROLIFERATION**

**FBIS**

**FOREIGN BROADCAST INFORMATION SERVICE**

#### NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [ ] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

#### PROCUREMENT OF PUBLICATIONS

JPRS publications may be ordered from the National Technical Information Service, Springfield, Virginia 22161. In ordering, it is recommended that the JPRS number, title, date and author, if applicable, of publication be cited.

Current JPRS publications are announced in Government Reports Announcements issued semi-monthly by the National Technical Information Service, and are listed in the Monthly Catalog of U.S. Government Publications issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Correspondence pertaining to matters other than procurement may be addressed to Joint Publications Research Service, 1000 North Glebe Road, Arlington, Virginia 22201.

19 MAY 1986

WORLDWIDE REPORT  
NUCLEAR DEVELOPMENT AND PROLIFERATION

## CONTENTS

## CANADA

Protest Disrupts Announcement of Nuclear Deal With U.S. (Toronto THE GLOBE AND MAIL, 24 Mar 86) .....	1
Reassurance Given on Nuclear Waste Site Selection (Windsor THE WINDSOR STAR, 1 Apr 86) .....	2
Doors to Quebec's Gentilly One Power Plant To Be Sealed (Ottawa THE CITIZEN, 21 Mar 86) .....	3
Ontario's Rolphton Demonstration Station Given Reprieve (Carell Johnson; Ottawa THE CITIZEN, 26 Mar 86) .....	4
Radioactive Fuel Rods Missing in Damaged Hydro Reactor (William Walker; Toronto THE TORONTO STAR, 3 Apr 86) .....	5
Committee Holds Hearings on Darlington Completion (Toronto THE TORONTO STAR, 3, 4 Apr 86) .....	7
Ontario Hydro Chairman, by William Walker	7
Other Hydro Officials	8
Ontario Hydro Negotiating Uranium Price, May Sell Tritium (Toronto THE GLOBE AND MAIL, 3 Apr 86) .....	9
Goal of Price Cuts, by Robert Sheppard	9
Tritium Sale Possibility	10

## EAST EUROPE

### INTERNATIONAL AFFAIRS

Plans for Development of Nuclear Power Sources in CEMA Countries (Sofia RABOTNICHESKO DELO, 24 Jan 86) .....	11
Controllable Thermonuclear Synthesis, by Vasil Khristov	11
Project for a Laser Reactor	13

### YUGOSLAVIA

Growing Opposition to Nuclear Power Plants Discussed (Ratko Boskovic; Zagreb DANAS, 4 Mar 86) .....	14
--	----

## LATIN AMERICA

### INTER-AMERICAN AFFAIRS

Reportage on Inter-American Nuclear Energy Group Meeting (Madrid EFE, 9 Apr 86; Buenos Aires DYN, 12 Apr 86) .....	20
Concern Over 'Meager' Budget Noted	20
Meeting Concludes	21
Yriart on Argentine-Brazilian Nuclear Accord (Martin Yriart; Buenos Aires ENERGEIA, No 55, 1986) .....	22

### ARGENTINA

Briefs	
Uranium Prospecting Agreement Signed	28
New Presidential, CNEA Advisers	28

### BRAZIL

Panel Recommends Nuclear Pact With Argentina (Brasilia Radio Nacional da Amazon Network, 18 Apr 86) ...	29
Seabra, Rex Nazare Comment on Current Status of Projects (Sao Paulo O ESTADO DE SAO PAULO, 18 Mar 86) .....	30
NUCLEN Head Warns Against Division of Nuclebras Subsidiaries (Sao Paulo O ESTADO DE SAO PAULO, 20 Mar 86) .....	32
Briefs	
CNPQ Head on Technology Imports	34
Re-Evaluation Commission Recommendations	34

## NEAR EAST/SOUTH ASIA

### EGYPT

Atomic Energy Agency Director Interviewed (Muhammad 'Izzat 'Abd-al-'Aziz Interview; Amman AFAQ 'ILMIYAH, Jan-Feb 86) .....	35
--	----



Nuclear Power Project New Bids Sought (London MIDDLE EAST ECONOMIC DIGEST, 4 Apr 86) .....	42
---	----

## INDIA

Gandhi on Nuclear Policy in Relation to Pakistan (G. K. Reddy; Madras THE HINDU, 9 Apr 86) .....	43
Nuclear Power Board Chairman Speaks to Engineers (Calcutta THE TELEGRAPH, 15 Mar 86) .....	44
Nuclear Power Board Chairman on Equipment Needs (Bombay THE TIMES OF INDIA, 20 Mar 86) .....	45
Need for Funds Stressed by Power Board Chairman (Madras THE HINDU, 6 Apr 86) .....	46
Budget Provisions for Nuclear Power Units Told (Madras THE HINDU, 24 Mar 86) .....	47
Briefs	
Bhabha Explosion Denied	48
Nuclear Power Corporation	48

## LIBYA

Briefs	
College of Nuclear Engineering	49

## PAKISTAN

Peaceful Aim Reaffirmed to India (Karachi Domestic Service, 19 Apr 86) .....	50
---	----

## SUB-SAHARAN AFRICA

### SOUTH AFRICA

International Conference on Nuclear Waste Planned (Cape Town DIE BURGER, 4 Mar 86) .....	51
Nuclear Contamination of French Workers Due to Negligence (Cape Town DIE BURGER, 7 Mar 86) .....	52
Briefs	
Guoriqua Nuclear Installation Dormant	53

## USSR

U.S. Said To Let Israel Obtain Nuclear Arms Materials (Vladimir Mikhaylov; Moscow SOTSIALISTICHESKAYA INDUSTRIYA, various dates) .....	54
TASS Cites U.S. Report on Need for U.S.-USSR Interaction (Moscow TASS, 4 Apr 86) .....	67

## WEST EUROPE

### FRANCE

Briefs	
Nuclear Reactor Issue .....	68

### SWEDEN

Nuclear Regulatory Agency Report: Safety Record Good (Stockholm SVENSKA DAGBLADET, 24 Dec 85) .....	69
West Germany's Kraftwerkunion To Supply Steam Units (Dag Bjerke; Stockholm SVENSKA DAGBLADET, 29 Mar 86) .....	71
ASEA Atom Expects Approval To Export Nuclear Gear to Finland (Ake Ekdahl; Stockholm DAGENS NYHETER, 9 Apr 86) .....	72

CANADA

PROTEST DISRUPTS ANNOUNCEMENT OF NUCLEAR DEAL WITH U.S.

Toronto THE GLOBE AND MAIL in English 24 Mar 86 p A4

[Text]

WINNIPEG

A news conference to announce the signing of an \$81-million nuclear waste research agreement with the United States was disrupted when about 26 anti-nuclear protesters peppered federal Health Minister Jake Epp with questions.

The conference came to an abrupt end on Saturday after organizers realized they could not silence the demonstrators, some of whom arrived with young children.

Demonstrator Donovan Timmers, whose group fears Manitoba is slated to become the site of a nuclear waste dump, told the minister "you haven't given us any reason to trust what you say."

Mr. Timmers also said the accord violates a promise from the Manitoba Government that there would be extensive public consultation before major alterations are carried out to Atomic Energy Ltd. of Canada's nuclear waste disposal research laboratory in Manitoba.

Mr. Epp praised the deal, saying there is a need to develop good technology to dispose of hazardous materials.

Under the accord, the United States will spend \$22.4-million in Canada and another \$10.2-million on research in the United States. Canada will have full access to the research.

The remaining \$48.5-million represents the contribution from AECL.

/12851

CSO: 5120/33

CANADA

# REASSURANCE GIVEN ON NUCLEAR WASTE SITE SELECTION

Windsor THE WINDSOR STAR in English 1 Apr 86 p A4

[Text]

FREDERICTON (CP) — The fears of Maine and New Brunswick residents over the selection as early as this summer of a site in Maine for disposal of nuclear waste are groundless, says a local physicist.

Stanton Friedman said in an interview Monday a final choice for an American nuclear waste depository will not be made until 1998.

A nuclear waste depository could be opened by 2006, he said, depending on approval from the U.S. Congress and upon completion of involved and costly environmental impact studies.

A group of Maine and New Brunswick residents have joined forces to prevent a nuclear waste facility being established in Maine. The groups fear a site at Bottle Lake, about 40 km (25 miles) west of St. Stephen, N.B., will be chosen in July.

But Friedman said there hasn't been any indication the Bottle Lake site is high or low on the list of 12 potential sites in the eastern U.S.

He said the 4,900-hectare (12,000-acre) site is the second smallest recommended and it is among the most remote from nuclear plants and industries.

Friedman also took issue with the contention the U.S. government, by

the year 2000, needs a facility able to handle 70,000 tons of radioactive waste, including 10,500 tons of weapons-grade plutonium.

He said industry sources indicate only 300 tons of weapons-grade plutonium had been produced by 1982. In any case, he said no weapons-grade plutonium will be stored in the depository.

HE ALSO disputed reports the New Brunswick government probably considers Bottle Lake a convenient place for Point Lepreau radioactive waste, currently stored in large deep-water tanks on the site of the New Brunswick nuclear power plant.

Friedman said there aren't any plans to store Canadian radioactive waste in the United States, but there are plans to store Point Lepreau waste in Ontario.

The United States plans to store nuclear waste in casks costing \$1 million each, he said. The casks, consisting of a steel liner surrounded by dense metal casing and a steel shell, are designed to withstand puncture, heavy impact and water.

The depository will consist of deep shafts carved out of stable crystalline rock formations, many of which happen to be found in the eastern U.S., he said.

/9317  
CSO: 5120/34

CANADA

DOORS TO QUEBEC'S GENTILLY ONE POWER PLANT TO BE SEALED

Ottawa THE CITIZEN in English 21 Mar 86 p C25

[Text] TROIS-RIVIERES (CP) — Seven years after Atomic Energy of Canada Ltd. was forced to take Quebec's first nuclear power station temporarily out of service, company officials are finally turning the plant into a concrete tomb.

The doors to the trouble-plagued Gentilly 1 power plant will be sealed next month and the maintenance costs AECL has been paying since 1979 for the partly dismantled plant will drop to \$500,000 a year from \$10 million.

Inside the concrete tomb, whose walls are one metre thick, is the radioactive carcass of an experimental, commercial-sized nuclear reactor that cost \$88 million to build in the late 1960s.

The plant was started up in 1970, ran intermittently for less than 200 days and was temporarily shut down for safety reasons in 1979.

Gentilly 1 is one of the first nuclear power plants of its size in the world to be even partially dismantled or decommissioned. AECL officials believe they can turn the loss of the plant into an advantage by marketing expertise they acquired during the \$25-million shutdown.

"Our intention is to market our decommissioning know-how and create jobs for Canadians," said Joel Liederman, general manager for AECL's CANDU operations in Montreal.

But the competition for decommissioning services will be stiff because most countries prefer to develop their own expertise.

One of the biggest markets AECL hopes to penetrate is the United States, which has several

reactors that are nearing the end of their lives and will need to be decommissioned, he added.

The dismantling operation at Gentilly 1 has already attracted the interest of nuclear experts. Last week, AECL hosted a workshop in Montreal on decommissioning for nuclear industry executives from Britain, France, the United States, Japan, West Germany and Italy.

Gordon Edwards, president of the Canadian Coalition for Nuclear Responsibility, says he's delighted that the Crown corporation has decided to close Gentilly 1, which he calls AECL's worst failure.

"Every time they started it up it would trigger its safety system and shut itself down," said Edwards.

Other problems developed when the Atomic Energy Control Board, which regulates the nuclear industry in Canada, demanded that AECL shut down Gentilly 1 until new safety equipment was installed. That would have cost \$120 million.

The final blow came when Hydro-Quebec decided in 1981 not to buy the plant. Gentilly 1 is built on property owned by the provincial utility, which was contracted to operate the plant.

Although Gentilly 1 shut down in 1979, more than 200 Hydro-Quebec employees remained posted there for security and maintenance until May 1984. AECL signed the paycheques.

Liederman said that it wasn't worth revamping Gentilly 1 with all the surplus hydro power in Quebec.

CANADA

# ONTARIO'S ROLPHTON DEMONSTRATION STATION GIVEN REPRIEVE

Ottawa THE CITIZEN in English 26 Mar 86 p C3

[Article by Carell Johnson]

[Text] ROLPHTON — Ontario Hydro and Atomic Energy of Canada Ltd. have reversed an earlier decision and agreed to keep the Rolphton Nuclear Power Demonstration station here open for at least three years.

Representatives of the two bodies, joint owners of the 24-year-old reactor, announced Tuesday the station will continue to operate until 1989.

The fate of the increasingly out-of-date station is to be re-evaluated in 1988.

"We have decided to keep (the station) open because we can still benefit from it," said Ontario Hydro chairman Tom Campbell.

The 25-kilowatt station near here, 225 kilometres northwest of Ottawa, has 213 employees. It was built in 1962 to train employees and demonstrate CANDU nuclear-reactor technology.

Last year, the training program was moved to southern Ontario. The station's usefulness has become limited because its design is different from Hydro's 16 other reactors. The station costs \$8 million annually to operate.

But the demonstration station is the oldest CANDU reactor, nine years older than any commercial unit.

James Donnelly, Atomic Energy of Canada president, says its age gives it "value in providing information about CANDU's durability."

Sean Conway, MPP for Renfrew North, also credits local protest as a key factor in the deci-

sion to keep the operation going.

"It was only because the community spoke out clearly and strongly that the Hydro board reacted this way."

Deep River Mayor Lyall Smith, active in the campaign to save the station, was delighted by Tuesday's announcement.

"It will allow for some stability. But the real work now begins. We have to find an alternate regulated use for the site," he said.

In delegations to Ontario Hydro officials in Toronto, local politicians and business representatives argued shutting down the reactor would severely damage the area's economy, which already is suffering from other setbacks.

After federal financing cuts in May, 250 jobs were eliminated at the Chalk River research site of Atomic Energy of Canada, the largest employer in the region.

In 1985, Ontario Hydro closed the Rolphton Nuclear Training School, cutting 100 permanent jobs.

In February, the Ontario Hydro employees union organized a rally in Deep River to save the station.

Union officials said the reactor's employees found the station's annual viability review hard on the nerves and asked for a commitment to keep the reactor open for more than one year.

If a shutdown had been ordered, all reactor staff would have been offered jobs at other Ontario Hydro sites. But some do not want to move.

CANADA

RADIOACTIVE FUEL RODS MISSING IN DAMAGED HYDRO REACTOR

Toronto THE TORONTO STAR in English 3 Apr 86 p A13

[Article by William Walker]

[Text]

Ontario Hydro engineers are on a delicate hunt for deadly, radioactive fuel rods that have become lodged somewhere inside a damaged nuclear reactor at the Bruce power station near Kincardine.

The loss of the fuel rods is a repeat of a 1983 occurrence at the Pickering nuclear reactor, where two fuel rods went missing in a similar accident.

At Pickering, Hydro eventually was forced into a three-year shut-down of the reactor, which will cost the utility \$1 billion.

The Bruce unit reactor will be shut down for at least a month, and possibly longer, forcing substantial, but as yet uncalculated, costs in replacement coal-fired power.

And Hydro officials now say tests may be required to determine whether the accident is an indication of weakening tubing inside the normally reliable reactor, which was first started in 1976.

Weakened tubing at Pickering prompted Hydro to replace all the tubes in two reactors.

A solemn Arvo Nutenberg, Hydro vice-president, announced to the government's select committee on energy yesterday that 6½ fuel rods were missing at Bruce.

**Coolant leak**

The accident, the first of its kind at the station, occurred last weekend when a pressure tube holding the fuel rods split open, causing the leak.

Nutenberg was asked by concerned MPPs on the committee for an update on the Bruce accident, which caused 10 tonnes of heavy water coolant to leak inside the reactor.

It is believed that at the time of the rupture, the fuel rods were shot out of the pressure tube and landed somewhere inside the reactor. At first, 8½ fuel rods were missing, but Hydro was able to locate two that had fallen into a storage bay containing spent fuel.

Hydro has repeatedly stated that no radioactive material has leaked outside the reactor and that the accident has caused no danger to the public or to Hydro staff.

Mike Williams, a Hydro spokesman, said officials are preparing to drop a remote-controlled camera inside the Bruce reactor in a bid to find the missing fuel rods.

No humans could venture inside to search because the rods are extremely radioactive and deadly to human touch within seconds.

Hydro must be extremely careful in locating the fuel rods, one official warned yesterday.

"Obviously, anything that hot (radioactive) gives off a considerable radiation field."

Each pencil-like fuel rod contains pellets of highly radioactive uranium fuel. The rods are bundled like toothpicks into groups of 37 and laid end-to-end inside the pressure tube. The bundles of fuel are about 50 centimetres (19 inches) long.

Each pressure tube holds 13 bundles laid end-to-end, and with 400 pressure tubes in a reactor, there are a total of 239,880 fuel rods.

Because Hydro has not yet been able to get the camera inside the troubled reactor, it is not known how large the rupture in one pressure tube is.

#### **Replace calandria**

But Williams said yesterday that it is thought to be "several bundles long," based on the amount of heavy water that leaked.

At the very least, Williams said, Hydro will be forced to replace

the damaged pressure tube and another tube that surrounds it, called the calandria.

At Pickering three years ago, a pressure tube ruptured inside the Unit 2 reactor and two fuel rods went missing.

The pressure tube was found to have ruptured after several "gar-ter springs," intended to separate tubes, had slipped out of place over several years and caused the aging metal tubes to scrape against each other.

Williams said recent tests at Bruce on the Unit 2 reactor showed that over the past 10 years, the garter springs had also slipped out of place.

At Pickering, tests on several other pressure tubes after the 1983 accident prompted Hydro to replace all the tubes. But the tubes inside the Bruce reactor are made of what Hydro believes is a stronger metal than an alloy used at Pickering.

Williams said the damaged tube from Bruce will be tested in a laboratory by metallurgists before Hydro decides whether to test other tubes within the same reactor for widespread weaknesses.

/9317

CSO: 5120/34



CANADA

## COMMITTEE HOLDS HEARINGS ON DARLINGTON COMPLETION

Ontario Hydro Chairman

Toronto THE TORONTO STAR in English 3 Apr 86 p A13

[Article by William Walker]

[Text]

Ontario Hydro chairman Tom Campbell has pleaded with a government committee to avoid the possibility of power shortages that could result from cancellation of part of the Darlington nuclear station.

Campbell, in an opening address before the select committee on energy, which is holding hearings at Queen's Park, made an obvious reference to the committee's ultimate purpose — deciding whether to complete the \$11 billion Darlington station.

"I would make a special plea to the committee," Campbell said.

"The flexibility of our system must never be compromised. None of us, not at Hydro or in government, will be pardoned if we take decisions in the next few years that cut supply and cause power shortages."

He also warned that thousands of jobs in Ontario could be lost if Hydro is not able to provide reliable electricity to industry.

Campbell's testimony began two full days of Hydro submissions. The utility is concentrating

on a supply-and-demand study for the late 1990s and beyond — under the assumption that Darlington will be completed as planned by 1992.

"Completion of Darlington is essential as part of the system required to be in place to meet the needs of the 1990s," Campbell said.

He added that Darlington — which critics say is unnecessary and will only add to Hydro's \$24 billion debt — will help attract investment in the Ontario economy and create jobs.

But the committee, in an interim report, has already expressed skepticism about the need for two of four reactors at Darlington. And it has ordered no new construction contracts to be signed until after the hearing.

Continuing what critics have tabbed Hydro's "more is better theory," Campbell yesterday argued that if Ontario produces more electricity, its economy will benefit.

### Other Hydro Officials

Toronto THE TORONTO STAR in English 4 Apr 86 p A10

[Text]

Ontario Hydro says nuclear power is the most economical and reliable source of electricity, but has asked the province whether it is willing to spend more money to find alternative sources of power.

Testifying before the Legislature's select committee on energy, Hydro officials yesterday explored all the power supply options available, aside from building new generating stations powered by coal or nuclear energy.

Hydro asked the MPPs to consider how much extra money might be available to develop a new hydraulic power plant, to purchase power from Manitoba or Quebec, or to develop small alternative technologies such as wind, wood or solar power.

The submissions ended two full days of presentations by the utility, featuring slide shows, a movie and several volumes of material prepared by Hydro researchers.

Hydro has told the committee that it is studying power requirements for the late 1990s and beyond, under the assumption that the \$11 billion Darlington nuclear station near Oshawa will be completed early in the next decade.

The utility has agreed to look at alternative sources of electricity in the future and to try to reduce demand for power through conservation methods.

The all-party committee's purpose is to decide whether Darlington should, in fact, be completed at all.

/9317  
CSO: 5120/34

CANADA

ONTARIO HYDRO NEGOTIATING URANIUM PRICE, MAY SELL TRITIUM

Goal of Price Cuts

Toronto THE GLOBE AND MAIL in English 3 Apr 86 p A9

[Article by Robert Sheppard]

[Text] Ontario Hydro is threatening to sever a long-standing contract with one of its main uranium suppliers — a mainstay of the northern mining town of Elliot Lake — unless substantial price cuts can be negotiated, the head of the utility said yesterday.

Hydro chairman Thomas Campbell told a committee of the Legislature that for the past several months the utility has been negotiating price and production cuts with Rio Algom Ltd. of Toronto, now that the eight-year-old contract has reached the stage where it is open for cancellation.

Hydro has already exercised some of the cancellation provisions in the contract because it can buy uranium more cheaply from Saskatchewan, he said.

At the same time, he said in an interview after the committee appearance, Hydro is mindful of "the human dimension (of the problem) and wants to be a good corporate citizen. . . . We would prefer to get the price down and still keep Elliot Lake a viable community."

Mr. Campbell said that he expects to conclude the negotiations with Rio Algom before the summer and then turn the matter over to the provincial Cabinet to decide.

He also suggested that if the Government does not give full endorsement to construction of all four phases of the new nuclear plant at Darlington, then that "would complicate matters" because much less nuclear fuel would be required over the longer term. Existing contracts had been based on grander projections.

So far, the Liberal Cabinet has not given Hydro the go-ahead to complete Darlington, but it has asked the Crown corporation to agree to abide by a legislative committee report that non-essential construction be held back during this period of re-evaluation.

Mr. Campbell said Ontario requires the full nuclear capability of Darlington if it is to remain attractive to potential investors. Hydro is going along with the Government request but the matter is largely academic because 80 per cent of the work, at least on the first two stages, has already been contracted out, he said.

At Rio Algom, senior officials acknowledged that there have been discussions with Hydro but would not talk about them in detail.

Even if that clause is exercised, which appears unlikely given the political fallout such a move would have in Northern Ontario, Hydro would still have to give five years notice before it could actually stop delivery of the Elliot Lake uranium.

Rio Algom is one of three main suppliers to Hydro. Its Elliot Lake mine, which exports most of its uranium to other countries, is still relatively dependent on the provincial utility. An estimated 20 per cent of Rio Algom production goes to Hydro, and that share had been forecast to increase substantially through the nineties under the terms of the existing contract.

In recent years, however, the utility has been buying about one-third of its uranium from Saskatchewan where the ore is of a better grade and mined more cheaply near the surface.

A second Ontario contract with Denison Mines Ltd. of Toronto would reach its cancellation phase in about four years and "many of the same arguments will be around again," Mr. Campbell noted.

However, there is a financial penalty to cancelling the contracts. Under the terms of the Elliot Lake agreements, both Denison and Rio Algom receive the cost of production plus a guaranteed profit, which is indexed to rise through the eighties and nineties.

## Tritium Sale Possibility

Toronto THE GLOBE AND MAIL in English 3 Apr 86 p A9

[Text]

Ontario Hydro may be able to sell \$20-million a year worth of tritium — a radioactive by-product of nuclear-energy production — for "good, peaceful, commercial purposes," Hydro chairman Thomas Campbell said yesterday.

Hydro is building a \$30-million tritium-extraction plant as part of its new, \$11-billion Darlington nuclear plant, currently under construction.

Mr. Campbell said the extraction plant is primarily a safety measure because the substance is "mildly radioactive." He added, however, that there is a potential \$15-million to \$20-million annual market, mostly in the United States, for the few litres of tritium gas that would be extracted.

/9317

CSO: 5120/34

PLANS FOR DEVELOPMENT OF NUCLEAR POWER SOURCES IN CEMA COUNTRIES

Controllable Thermonuclear Synthesis

Sofia RABOTNICHESKO DELO in Bulgarian 24 Jan 86 p 4

[Article by Vasil Khristov, Institute of Nuclear Research and Nuclear Power at the Bulgarian Academy of Sciences: "The Inexhaustible Atom"]

[Text] Last December the forty-first extraordinary session of the Council for Economic Mutual Assistance approved the complex program for scientific and technical progress of the member countries of CEMA upto the year 2000. One of the five major directions of the program is the accelerated development of atomic energy.

Research in this direction is connected to the future completion and introduction of atomic power stations with water-cooled reactors with thermal neutrons -- WCNPR (water-cooled nuclear power reactor) 440 and WCNPR 1000, upon which the nuclear power of the member countries of CEMA is now being built. The issues are resolved with the creation of atomic thermoelectric power plants and atomic plants for heating supplies, high temperature nuclear power technology systems with fast breeding characteristics, and fast neutron breeder-reactors. The program also provides for joint research on one of the most interesting problems of the future supply of power -- the creation of scientific principles of controllable thermonuclear synthesis. That which, just 5 to 10 years ago, seemed like a dream, a problem for the next century, is now a difficult, but actually feasible scientific and technical task.

The Hot Breath of Plasma. The successes of Soviet science and technology in the sphere of atomic energy have given her an advanced position in the world. At the Kurchatov Institute of Atomic Energy the first thermonuclear structures named TOKAMAK (toroidal chamber with a magnetic spool) were created, in which close-to-desirable parameters were achieved and the feasibility of controllable thermonuclear synthesis was demonstrated in principle.

Gaseous nuclear fuel -- a mixture of deuterium and tritium (heavy hydrogen isotopes) is injected into the chamber, which is shaped like a closed finger, of a cylindrical vacuum tube (a round pretzel). In order for their nuclei to fuse, whereupon large amounts of energy are discharged, the gaseous mixture

must be brought to the state of high-temperature plasma and is heated to a temperature of approximately 100 million degrees. This is why the synthesis is called thermonuclear. In order to isolate the hot plasma from the walls of the chamber, a strong magnetic field is created with the aid of spools. In this way, the magnetic field constricts the plasma contained in the chamber in the form of a plasma flex, not touching the walls. The gaseous mixture heats up with the aid of their electrical impulses which reach several million amperes.

This illustration of the essence of controllable the thermonuclear process is much simplified, of course. It can be defined more precisely if we indicate the projected parameters of the new system TOKAMAK-15. In the first demonstration of the thermonuclear structure, the temperature of the plasma is expected to reach 70 to 100 million degrees, at electrical impulses of 1.8 million amperes and a retention time of 0.2 to 0.3 seconds for the plasma. The chamber will have a cross-section diameter of 4.6 meters and a plasma flex diameter of 1.5 meters.

Draft plans are being developed for the first experimental thermonuclear reactor (ETR). These plans provide for a uranium blanket for the ETR, in which up to 150 kg of plutonium per year will be produced. Its electric power will reach 100 thousand kilowatts. At the moment, there are approximately 100 TOKAMAK thermonuclear installations in use in the world. Other methods of thermonuclear synthesis are being developed, for example using lasers to heat the plasma.

The International Agency for Atomic Energy recently adopted the suggestion of Soviet scientists for the joint development, equipment and exploitation of one of the largest thermonuclear structures, called INTOR. At present an international group of physicians from the USSR, the USA, Japan and other western countries are working on this project. This is the right way to direct the efforts of all countries toward the important problems of the peaceful use of atomic power, toward ensuring lasting peace in the world.

Water -- The Source of Power. Cooperation between the member countries of CEMA in this sphere began as early as 1978 on the initiative of the Soviet Union. The bilateral scientific and technical cooperation between the Institute of Nuclear Research and Nuclear Power at the Bulgarian Academy of Sciences and the Kurchatov Institute of Atomic Power includes joint research into neutron physical characteristics of materials used in the blanket (the area which houses the plasma) and biological defense of thermonuclear reactors. We are also developing spectral methods and devices for plasma diagnostics. At our institute, theoretical research is going on into muon catalysis (the elementary mesotron particles provoke accelerated thermonuclear reaction with the nucleus of deuterium at room temperature). This is a new and promising method which could find a practical application in the more distant future when it is possible to create thermonuclear structure with a mesotron factory (a powerful source of mesotron).

For now, only the thermonuclear reaction between the nuclei of deuterium and tritium is feasible. Although tritium does not naturally exist in a free state, it can be produced from lithium in a blanket when irradiated with neutrons which the thermonuclear plasma emits. The first thermonuclear



reactors will probably be hybrid systems for synthesizing and splitting the nuclei. In the reproduction zone, uranium or thorium isotopes are inserted from which, as a result of their splitting, additional amounts of nuclear power are yielded and secondary nuclear fuel is produced -- plutonium 239 and uranium 233.

In order to move on to the next stage -- thermonuclear synthesis of only the deuterium nuclei, many scientific and technical problems have to be resolved. Because ten times greater parameters of plasma are needed for the practical realization of this synthesis. The prospects for the practical realization of thermonuclear reaction of this type are particularly attractive, since in every liter of water there are 37 mg of deuterium which can easily be extracted. The power equivalent of this amount of deuterium can be compared to approximately 300 liters of benzine. In this way, the thermonuclear "heating" of water will be transformed into a practical, inexhaustible source of power. This will open up colossal possibilities for scientific and technical progress of unending advances in the economic and cultural development of the whole of mankind.

#### Project for a Laser Reactor

Sofia RABOTNICHESKO DELO in Bulgarian 24 Jan 86 p 4

[Journal announcement]

[Text] As Professor Vasil Khristov's article was going to press, we received an announcement in the editorial office. It bears directly on the information concerning the future development of controllable thermonuclear synthesis which is contained in the article.

Soviet scientists have suggested a solution to the problem of controllable thermonuclear reaction with a thermonuclear reactor in which plasma is heated by a laser beam. The design is being produced at the Moscow Physics Institute under the leadership of Academician Nikolay Basov. At the basis of the new plan is a spherical reactor with the power of one hundred million kilowatts. Not incidentally, the globe has been chosen as the form of the vacuum chamber. The target, placed just in the center, can most evenly be irradiated by lasers.

Research is being conducted in the Delfin thermonuclear laser system and interesting results have been produced. The temperature of the thermonuclear plasma has reached twenty-five million degrees, and this allows an intense emission of thermonuclear reaction to be achieved.

One of the directions in the resolution of the problems of thermonuclear synthesis is the method of heating the fuel mixture by laser. If the temperature reaches the optimum level, one billionth of a second will be enough to ignite the mixture.

12907  
CSO:5100/3023

YUGOSLAVIA

GROWING OPPOSITION TO NUCLEAR POWER PLANTS DISCUSSED

Zagreb DANAS in Serbo-Croatian 4 Mar 86 pp 9-11

[Article by Ratko Boskovic: "Fusion Without Fission"; first paragraph is DANAS introduction]

[Text] The public discussion about building nuclear power plants in our country has both voluble opponents (ecologists who like neither discussion nor nuclear power plants) and advocates who base their demand on the fear of new uncontrolled borrowing and on technological dependence. In this case, however, public discussion has been envisaged even by law, but the question is whether all the necessary elements have been brought about for that discussion.

Opposition to the Yugoslav program for nuclear power development has occurred in public in recent days with the suddenness and ferocity of an eruption in the very middle of the period envisaged for gathering foreign and domestic bids for the transfer of technology and for construction of the Prevlaka NE and along with it a new series of four nuclear power plants in all which would presumably begin to generate power at the end of this century and the beginning of the next one.

However, it is not just a question of opposing the nuclear program. The manner and time in which the discussion was opened and also the demands which have been presented in it constitute a new sociopolitical phenomenon which actually did not begin with the nuclear power plants, nor does it intend to stop with them. At the very outset of the discussion, which seems to have surprised everyone and which will certainly escalate in the days to come, the statements about nuclear power are only a medium for much broader political goals than the desire to start a debate about electric power stations, and many high tensions that have built up in Yugoslav society are discharging and springing up. We believe that in the discussion to come it will not always be easy to recognize them, which is why we will attempt to survey them at least superficially.

Antinuclear Sentiment and the Ecologists. There is no longer doubt that a very strong antinuclear disposition has grown up in Yugoslavia within the framework of an altogether new ecologicistic movement. As with any such movement, its aims go beyond ecology. This is evident from the very vocabulary which it uses and which is without precedent in Yugoslavia: In the discussions



of the Plomin TE the electric power industry has already been referred to as the "electric power Mafia" and an "alienated power center"; the possibility of demonstrations at the site where a power station is being built has been openly mentioned throughout an entire region for what is the first time as far as we know.

On 23 February NIN added new terms to that arsenal: "electrofascism, nuclear madness, the new despotism...the observations are recognizable even in these nuclear situations (troubles) of our own...." And further: "The public is slowly waking up and is more and more placing belief in its own layman's intelligence."

Why should it wake up precisely over the question of building nuclear power plants, and can it be that in a socialist country there are no other channels for showing vigilance? Clearly it is not a question just of nuclear affairs, nor is the Green Movement a phenomenon exclusive to the Western countries: In Hungary, according to THE ECONOMIST on 8 February, that same day the Hungarian /independent ecological movement/ (emphasis [represented by slantlines] supplied by the author) Duna Kör (the Danube circle) planned a march through Budapest in order to protest construction of the Czechoslovak-Hungarian dam at Nagymaros, which, in the assessments of Hungarian and West European ecologists, would cause irreparable damage to the environment in central Europe....

Electric Power Industry and the Public. "Even our own advocates of building nuclear power plants would like to do their job out of the public eye," it has been said in a newspaper article. In short, the procedure which preceded the international invitation for bids was as follows.... The Executive Councils of Slovenia and Croatia agreed on construction of Prevlaka and on setting aside the money necessary back in early 1982, when the preparations for construction also had to begin. Space for Prevlaka was reserved in the debates in the Croatian Parliament in October and November 1983. Even that step was preceded by several extensive studies into the acceptability of a site not far from Zagreb (the major power consumer), and those studies survived the discussions by all the competent self-management and administrative bodies.

In order to advertise the international competition five republics and the Province of Vojvodina signed a self-management accord; in the context of the agreement on long-range development of Yugoslavia's nuclear power all the republics and provinces came to agreement and signed and published the Social Compact on Uniform Procedure for Selection of the Nuclear Fuel Cycle and the rest. All the republics and the federal atomic commissions and governments gave their consent to the invitation for bids.

Three consortiums were also formed: JUMEL, an association of producers of nuclear equipment, "4E," a consortium of Yugoslav project planning organizations, and NUKLIN, an association of nuclear institutes and scientific institutions. A virtual mound of documents were drawn up, and they all went through reviews by domestic specialists at all levels and also specialists of the International Atomic Agency. Unless all those bodies were operating on their own hook without consulting their own constituency and councils and the specialized circles they rely on, it can by no means be said that things were

done in secret. What is more, it is more likely that there is not a single specialist in nuclear power or related fields in Yugoslavia who was not involved in organizing preparations for construction of the nuclear power plants.

The demands for a general referendum, then, may be an expression of a lack of confidence in establishment of decisionmaking procedure, a lack of confidence in all those commissions, committees, institutions, and governments. Or the demand for a referendum is at the same time a desire for satisfaction in repayment for those days of euphoric government investment when public opposition--in the youth press, for example--ended up with action taken by prosecutors and courts? Or the result of an assessment that the time of government investment has not gone by at all?

It is difficult to say. In any case, the public discussion is welcome, although it is hard to believe that anything will come out of it that has not already been applied in the 40 years of experience in work with nuclear power plants in the world. It will be a splendid result if only public supervision is established over the process as to whether what is known in the world is fully applied or not.

Certain prerequisites are necessary for this kind of public discussion and indeed also for any referendum that might possibly follow from it. First of all, the electric power industry must inform and teach the public about power engineering in an essentially better way. This cannot be done with unreadable and altogether incomprehensible "material" presented for public discussion; this cannot be done without professional public relations departments. Another necessary prerequisite for a constructive referendum is an opportunity to examine the secrets, an opportunity for a pluralism of nuclear interests to be expressed in media which do not arise solely out of the differing interests of the republics and provinces.

In any case, the public discussion has been prescribed by law. Under the Law on Ionizing Radiation and the law on approval of construction of projects like a nuclear power plant, obtaining what is referred to as the site permit requires proving under 13 topic headings that a nuclear power plant at the particular site will not endanger the environment, the population in the vicinity, and the existing infrastructure. Accordingly, the public discussion cannot be omitted, even if someone wanted to do so, but that kind of discussion must be organized at the point when all the necessary elements for it exist.

Water, Coal, Petroleum, Solar. The most up-to-date knowledge about coal deposits in Yugoslavia states that at the present rate of consumption the geological reserves are sufficient for the next 230 years. Coal, then, it is asserted, might be our "bridge to the future," an inexpensive source of energy with which we might calmly await commencement of the commercial use of nuclear fusion. To fusion, then, without passing through fission. Even now it is known that fast-breeder reactors in the first commercial series will cost twice as much as conventional reactors, and nothing can be said about fusion reactors, since they are still generating power only in theory. Accordingly, if at this point Yugoslavia is not economically capable of building conventional nuclear power plants, how is it going to take the one or two quantum

jumps in economics, knowledge, and experience in the use of nuclear technology to reach the new generations of nuclear power plants?

Hydroelectric potential rated at about 20 million kwh of power per year is still unutilized in Yugoslavia. In Croatia about half of the hydro potential is also unused--but that is the "half that was left over": there is room for a number of quite small hydroplants, mainly run-of-river, the more expensive and uneconomical half which is precisely a reserve and is waiting for that level of power rates at which its exploitation will pay off.

There is no sense at all in speaking in this context about the sun and the wind--or in fact about oil and gas, since these sources cannot satisfy more than a certain percentage of energy needs, and the power which they can supply is many times more expensive than the power from conventional sources.

**Power Demand and Supply.** During the last two medium-term periods power consumption in Yugoslavia has increased faster than production. Nor will it be possible to halt this lag in the near future, so that by the end of the century the electric power industry is forced to plan shortages instead of surpluses and reliable supply of power. According to the plan, by the year 1990 power consumption in Yugoslavia should increase 5 percent, and production 4.9 percent. At the end of the decade there would be an annual shortage of 2.5 billion kwh assuming that the plans are fulfilled--which has never happened yet. Croatia is among the republics which are planning larger production and consumption, but production is possible--if we exclude the Prevlaka Nuclear Power Plant and the Plomin Hydroplant--only on the territory of other republics and provinces.

**Distrust of the Scientists.** "It was a bit unexpected," BORBA reported on 23 February concerning the discussion in the LCY Central Committee, "when in the debate about the scientific revolution Dr Dragisa Ivanovic, professor, raised the question of building the new nuclear power plants in the country, emphasizing first of all that 'it must not be allowed to become a noose around Yugoslavia's neck.'..." Prof D. Ivanovic also "came out in favor not only of discussion among specialists, but also in favor of the entire people beginning to talk about this. He also raised the issue of which specialists are making decisions about this and why their names are being concealed." "After all, wasn't it our 'experts' who built the steel mills and the 'Obrovacs' and the 'FENIs'?" NIN asked.

**How To Conduct Policy.** The main question is whether with these kinds of divisions Yugoslavia is at all capable of conducting a consistent nuclear energy policy in the face of the national or multinational owners of nuclear technology? Is it possible to prevent this from being discussed in the half-darkness of business negotiations, in private arrangements, under the sponsorship of republic or certain local bodies of leadership? Can and will the laws of economics be respected?

In the present discussions of nuclear policy, however, interrepublic intolerances have flared up as never before. First, an attempt is being made to launch the argument that the nuclear program is being carried out by only one

Fear of Borrowing. "It has never occurred to anyone to repeat the lesson we learned with Krsko with respect to the financial package when it comes to any future nuclear power plant," Milka Planinc said in the debate in the LCY Central Committee. Krsko was purchased with credit whose repayment has been postponed several times. Interest, interest accrued during construction, and differences resulting from exchange rates have therefore accumulated. The new power plants are being purchased in a commercial arrangement so that they are paid for with counterdeliveries, primarily of nuclear high technology. "There is no question of any commercial tricks or taking advantage of a single occasion to make a profit. That will not get through the procedure of evaluating the bids (both foreign and domestic, author's note)," says Zarko Petrovic, manager in charge of preparation of construction of the Prevlaka NE.

Accordingly, if the demands for a referendum on the nuclear power plants are also motivated by a fear of the country's new uncontrolled borrowing, then that is a demand to condemn in advance those people who--at least as far as can be seen at present--are doing everything to prevent that indebtedness. There is really no justification for blaming those people for the old debts.

The fear of technological dependence on the foreign supplier of equipment and know-how is also related to the fear of new borrowing. However, this is another topic which cannot be discussed in advance. We have to await the bids. Everything that could be done to avoid any considerable strategic dependence was done in the rules stated in the advertisement inviting the bids. The foreigners are not really to blame for the fact that Yugoslavia does not have the know-how to manufacture the materials for the core of the nuclear reactor, much less the reactor itself.

Models in the World. France gets all of 65 percent of the electricity it generates from nuclear power plants, and no one has said that anyone is especially disturbed about that. In West Germany nuclear power plants generate 110 billion out of about 400 billion kwh generated every year. In Belgium precisely half of the power comes from nuclear plants. In the United States nuclear power plants are providing nearly 300 billion kwh (out of a total of about 2,300), which exceeds total power production in France or the total output in Yugoslavia, Italy, Austria, and Belgium taken together.

In France they have calculated that power from nuclear power plants is cheaper in the long run (it costs \$.375) than power from coal (\$.415) and power from oil (\$.895 per kilowatt-hour), but in France the costs of generating electricity from coal included the costs of opening up new coal mines and the price of new locomotives and cars for shipping the coal.

It would be difficult to argue that over a lengthy period of time construction of nuclear power plants, say, in the countries of western Europe of most interest to us for comparison has been falling off, sticking at the same level, or has gotten into a crisis. On the graphs of power production in those countries the share of nuclear power plants has been increasing without interruption over the last 15 years, and in the plans for the end of the decade it has actually come on a par with the share of coal and water, and has considerably exceeded the share of oil.

Do we need any more examples?



INTER-AMERICAN AFFAIRS

REPORTAGE ON INTER-AMERICAN NUCLEAR ENERGY GROUP MEETING

Concern Over 'Meager' Budget Noted

PY091715 Madrid EFE in Spanish 0004 GMT 9 Apr 86

/Text/ Buenos Aires, 8 Apr (EFE)--The delegates attending the 14th Inter-American Nuclear Energy Commission (IANEC) today expressed their concern over "the serious financial limitations of this commission."

In view of this situation, they agreed to request that OAS member countries give "more specific and effective" support to IANEC activities.

During the debates of the second plenary meeting held in the San Martin Cultural Center, the delegates from Paraguay, Argentina, Brazil, Venezuela, Guatemala, Colombia and Chile, among others, expressed their dismay over the commission's meager budget.

It was noted that IANEC has an annual budget of only \$85,000, and they demanded the adoption of urgent measures aimed at bolstering the institution's budget.

The chief of the Argentine delegation, Abel Gonzalez, noted that "the problem of IANEC's economic limitations is crucial." He said that it is possible to obtain financial assistance and cooperation from international organizations, such as the IAEA.

For his part, the chief of the Brazilian delegation, Helcio Modesto da Costa, noted that it is necessary to seek the means to carry out a good program of activities, even with reduced financial resources.

He said: "Our countries are confronting serious problems as a result of the foreign debt and, therefore, have their budgets tied to foreign debt commitments."

Richard Corrie Matos, the chief of the Venezuelan delegation, generally said the same thing. He suggested staging publicity campaigns about the benefits of food radiation, an issue that will be discussed tomorrow during a technical discussion.

The debate took place during a review of the report that was submitted to the commission by IANEC Executive Secretary Vladimir Yackovlev.

The 14th IANEC meeting will end on 11 April.

19 May 1986

## Meeting Concludes

PY130255 Buenos Aires DYN in Spanish 2003 GMT 12 Apr 86

/Text/ Buenos Aires, 11 Apr (DYN)--The XIV Meeting of the Inter-American Nuclear Energy Commission /IANEC/, a technical organization belonging to the United Nations, concluded today after 5 days of sessions at the San Martin Cultural Center in this capital.

During these sessions special emphasis was given to the progress made in the technology regarding the preservation of food through nuclear radiation. This technology is already being experimented with in Argentina, Brazil, Colombia, Chile, and Peru, although so far not at the industrial level. The 9 April meeting was an open dialogue on the topic and at the same time nuclearly radiated food was tasted.

Experts from the 18 Latin American countries that participated in the meeting pointed out that the use of this technology at an industrial level might represent a reduction in post-harvest losses, as well as the opening of new markets for exporting Latin American products.

The technology for the nuclear radiation of food--which is being experimentally used on San Juan grapes--will prolong the freshness of perishable products meant for domestic as well as export markets.

During its next period of sessions, the IANEC Consulting Committee will stage in Latin America a broad education campaign about the radiation of food, the production of radioisotopes, and nuclear medicine, as well as the peaceful use of nuclear technology.

Dr Renato Radicella, from Argentina, was elected IANEC chairman for the next period, and Dr Helcio da Costa, from Brazil, was elected vice chairman.

The next meeting will take place in Brazil during the first 6 months of 1988.

/12228

CSO: 5100/2063

INTER-AMERICAN AFFAIRS

YRIART ON ARGENTINE-BRAZILIAN NUCLEAR ACCORD

Buenos Aires ENERGEIA in Spanish no 55, 1986 pp 12-15

[Article by Martin Yriart]

[Text] Two recent initiatives in the areas of legislation and international agreements seem to indicate that after an incomprehensible period of paralysis, the process of redirecting Argentina's nuclear policy, which the Radical government initiated in December 1983, has begun to move once again. On 30 November 1985 in Iguazu, President Raul Alfonsin and his Brazilian counterpart, President Jose Sarney, signed the Iguazu Declaration and the Joint Nuclear Policy Declaration. These two documents are of vital significance in shaping relations between the two countries in the sensitive field of atomic energy. And in the National Congress, the energy commission of the Chamber of Deputies has begun its consideration of a bill called the Argentine Nuclear Law.

The Political Framework

The Iguazu Declaration, a 32-paragraph document, reviews the major current topics in Argentine-Brazilian bilateral relations, and cites some important areas of agreement on both a regional and worldwide level in economic, political and social development problems. Paragraphs 22 and 24 to 27 state their intention to proceed with energy integration and in particular with cooperation in the Garabi and Pichi Picun Leufu projects, and with the interconnection of their electricity systems. Paragraphs 28 and 29 state their mutual desire to cooperate in the field of science and technology, with special mention made of the peaceful uses of nuclear energy.

Paragraph 31 states: "Both presidents express their pleasure at having on this date signed the Joint Nuclear Policy Declaration which expresses the peaceful purposes of their nations' nuclear development programs, and which forms part of the best traditions of cooperation and peace inspiring Latin America."

The Iguazu Declaration contains two special features; a much more concrete and practical content than what is typically found in declarations of international good will; and in addition, a definite renunciation of any possible

antagonism between the two countries represented, at least on the part of Argentina, with a moving away from earlier positions--whether explicitly stated or more or less concealed--and a clear reference to binational integration, even including complementary development between the two nations. Just a short time ago that concept was considered taboo in our foreign policy dealings with Brazil.

The Iguazu Declaration, particularly the points just mentioned, provides the political-economic framework for the Joint Nuclear Policy Declaration, whose text is published at the end of this article.

#### Revealing Phrases

In its brief provisions, the Joint Declaration contains statements which deserve comment; these points are discussed below in their order of appearance.

a. "The growing difficulties encountered with international supplies of nuclear equipment and materials." This statement heralds the formation of a front against the Club of London and the TNP [Non-Proliferation Treaty] (particularly Great Britain and the United States), which have not hesitated to erect obstacles impeding independent nuclear developments outside the orbit of NATO and the Warsaw Pact, even when the purpose of such developments is openly and is proven to be peaceful. As an example, the appeals by the developing nations to the IAEA [International Atomic Energy Agency] have not yielded positive results, and this discriminatory attitude toward them still persists in terms of assistance, even when they have accepted the TNP.

b. This "cooperation must be open to all Latin American countries which are interested in participating in it...and...have the same objectives." It is now clear that the application of safeguards of the TNP type to the signers of the Treaty of Tlatelolco, and the interpretation made of the latter treaty by some nuclear powers upon joining as members of that treaty, have ended in weakening its open and egalitarian nature, thus perpetuating the same inequalities as the TNP, and creating a division among the Latin American nations based on interests which are alien to them, such as the military supremacy of the nuclear powers which the TNP fosters.

c. "The creation of mechanisms to ensure the higher interests of peace, security, and development of the region." In essence, a replacement for the Treaty of Tlatelolco, which will ban nuclear weapons from Latin America and at the same time allow the free development of the peaceful uses of nuclear energy. These mechanisms might consist of a bilateral agreement for the mutual inspection of installations between Argentina and Brazil, which could then be extended to any other countries of the region wishing to share in this international safeguards system.



## Repercussions and Reservations

Despite its significance, the Joint Declaration has drawn little commentary from the public opinion of both nations. Rosenthal Calmon Alves, a political analyst from the prestigious JORNAL DO BRASIL in Rio de Janeiro, noted the reluctance of some Brazilian military circles, which do not consider mutual inspections necessary. On the Argentine side, there may be sectors which feel that opening up installations such as the Pilcaniyeu uranium enrichment plant for inspection would be granting a unilateral technological advantage to Brazil in this field, in which Argentina is ahead, and exposing ourselves to industrial espionage from other nations.

The first of these objections is clearly contradicted by the perception of the international situation in terms of nuclear exchanges, a perception existing in both foreign ministries, which are responsible for seeking a way out of the impasse created by the TNP powers. The ability of Brazil's diplomats and politicians to overcome this military opposition--if such opposition truly exists--will provide a measure of the strength of democracy in Brazil.

Concerning enrichment technology, Argentina's presumed monopoly inside Latin America offers little economic advantage, for there are at least seven other nations in the world which possess this technology, and Brazil will obtain access to this technology sooner or later, by means of its nuclear cooperation agreement with Germany. Moreover, we should also put in the scale the amount that Argentina loses year after year, because of the delays and added costs created by the barriers erected by the TNP against the acquisition of nuclear technology.

Now that the doors have been opened up for a true integration and economic complementarity between the two nations, it may be hard to maintain a stance of excessive reticence about uranium enrichment, a technology in which Brazil is even more interested than Argentina is. Eventually the investment which the CNEA [National Atomic Energy Commission] has made in its development--which is at the present time incomplete and still requires some major industrial investments--will have to be put to use, and the possibility of associating with another country in this development would be an excellent way of making some profits in advance, by recovering part of the capital invested when the terms of this association are agreed upon.

## Safeguards and Espionage

The idea of establishing a system of mutual inspections, moreover, does not necessarily imply interference by foreigners inside the safeguarded installations, since in principle a "black box" system could be used, with a single entry and exit, with accounting procedures for nuclear materials and monitoring of their origin and destination, to an extent sufficient to determine that no materials were being diverted for nonpeaceful uses. In any event,

it is important to note that any safeguards system is effective to the extent that both parties demonstrate their good faith, and further that the beneficiary of the safeguards system is the one who opens his facilities up for inspection, not the one who inspects. If that is not the case, the system becomes unworkable.

Argentina's confidence in the inspections system as a means of preventing the holocaust of nuclear war was also reflected in the New Delhi Declaration signed in 1985, in which Argentina joined with India, Mexico, Tanzania, Sweden and Greece, in urging the nuclear powers to disarm, and offered the services of the Third World nations to guarantee the verifiability of the accords. That is one of the critical points of the worldwide nuclear weapons problem.

#### Time for a Law

The Argentine Nuclear Law bill, on which the Chamber of Deputies' energy commission has begun to work, contains a number of provisions concerning nuclear energy development for peaceful purposes and the application of safeguards. Drafted by the counsel of the Justicialist Party bench in the Chamber, Dr Alfredo Carella, the bill was introduced with the backing of deputies Diego Ibanez and Julio Cesar Araoz, as well as some others. The commission has appointed Carella and the Radical Party member Dr Enrique Mariano, a CNEA official, IAEA expert and member of the General Mosconi Energy Institute, to consult with the appropriate sectors and to prepare the final version of the nuclear law bill.

The Radical Party has also prepared its own bill, which has not been made public. That bill is now blocked in the president's office, because of the objections raised against it by the director of the CNEA, engineer Alberto Costantini.

According to the information available, there are some definite areas of agreement between the two bills--on the exclusively peaceful purposes of Argentina's nuclear program, and on the safeguards policy, with the added feature that the Radical Party bill apparently calls for internal safeguard mechanisms, following the Japanese model. The Justicialist version includes a unilateral statement renouncing the military uses of nuclear energy, and containing a provision for conferring legal status on this document by filing a ratification document with the foreign ministries of the nations with which Argentina maintains relations, as well as with international organizations. This would give it the international legal status of a treaty. But the Justicialist bill takes the position that only those installations, materials, equipment or technologies obtained from or exported to third countries would be subject to safeguards, with the added provision that safeguards agreements would have to be approved by Congress.

An in-depth analysis of the bill in question goes beyond the scope of this article, but it is possible to predict that, on the subject of peaceful uses and safeguards, no difficulties will arise in reconciling the positions of the two majority parties, and that Argentina's future policy in this area will not differ substantially from the line it has pursued in the past, even though some imaginative innovations may be introduced in the instrumental area, such as bilateral mutual inspection agreements and the creation of an internal accounting and control authority for nuclear materials.

The reaction of the nuclear powers to these developments remains to be seen. These agreements do represent alternatives not foreseen in their policy, although the accords should mean--for people who supposedly want to contain the worldwide proliferation of nuclear arms--positive steps taken toward strengthening the world's security.

#### Joint Nuclear Policy Declaration

The president of the Argentine Republic, Dr Raul Alfonsin, and the president of the Federative Republic of Brazil, Dr Jose Sarney, after talks held in Puerto Iguazu, Argentina, and in Foz do Iguazu, Brazil, on 29 and 30 November 1985,

#### Considering:

That nuclear science and technology play a vital role in the life of any modern country, by significantly stimulating its social and economic development.

That both countries have worked for many years on research and studies of nuclear energy applications for peaceful purposes; that this has required them to make huge investments in order to reach an appreciable level of knowledge, which now gives them access to the possibility of helping their respective peoples with advances derived from the peaceful use of nuclear energy.

That cooperation between Argentina and Brazil will serve to multiply the benefits that they may each reciprocally obtain from the peaceful use of nuclear energy; and that it will enable the two nations to face in better conditions the growing difficulties encountered with international supplies of nuclear equipment and materials.

That this cooperation must be open to all Latin American countries which are interested in participating in it,

#### Hereby reiterate:

1. Their commitment to develop nuclear energy for exclusively peaceful purposes.

2. Their intention to cooperate closely in all fields of the peaceful application of nuclear energy and to work on a complementary basis in areas in which they may reciprocally feel it appropriate to do so.
3. Their strong desire that this cooperation may be extended to other Latin American countries with the same objectives.

And declare:

4. Their decision to establish a joint working group under the responsibility of the Argentine and Brazilian foreign ministries, to be composed of representatives of their respective nuclear commissions and enterprises, for the purpose of stimulating relations between the two countries in this area, promoting their nuclear technological development, and creating mechanisms to ensure the higher interests of peace, security and development of the region, without prejudice to the technical aspects of nuclear cooperation, which will continue to be governed by the instruments in force.

In accordance with the above mentioned objectives, the two presidents have instructed their respective foreign ministries to convene a meeting of the working group within a period of 120 days, in order to examine procedures leading to the implementation of the present declaration.

Foz do Iguazu, 30 November 1985.

Raul Ricardo Alfonsin

Jose Sarney

7679

CSO: 5100/2058

ARGENTINA

BRIEFS

URANIUM PROSPECTING AGREEMENT SIGNED--Buenos Aires, 3 Apr (DYN)--Adolfo Rodriguez Saa, governor of San Luis, and Alberto Constantini, president of the National Atomic Energy Commission (CNEA), today signed an agreement by which they promised to work jointly in the exploration and exploitation of uranium. The agreement, which follows guidelines established by the mining code and other legislation on this matter, also grants the San Luis Province the right to ask for "scholarships for specialization" and confirms the operation of La Estela uranium mine. The agreement was signed this afternoon during a press conference with the participation of Rodriguez and Constantini in addition to other San Luis Province and CNEA officials. Officials said that the extraction and processing of uranium in La Estela mine in the Comechingones mountain range, which has been operating since November 1985, are being carried out in addition to efforts at the Sierra Pintada (San Rafael, Mendoza Province) and Gigantes (Cordoba Province) uranium deposits. La Estela mine is a new national source for uranium. /Text/ /Buenos Aires DYN in Spanish 0131 GMT 4 Apr 86 PY/ 12228

NEW PRESIDENTIAL, CNEA ADVISERS--Buenos Aires, 26 Mar (TELAM)--It was officially reported today that the executive branch has designated Jose Carlos Piva and Armando Ortega Furlotti as presidential and CNEA /National Commission for Atomic Energy/ advisers, respectively. /Excerpt/ /Buenos Aires TELAM in Spanish 1940 GMT 26 Mar 86 PY/ 12228

CSO: 5100/2063

BRAZIL

PANEL RECOMMENDS NUCLEAR PACT WITH ARGENTINA

PY181805 Brasilia Radio Nacional da Amazon Network in Portuguese 1000 GMT  
18 Apr 86

[Text] Brazil and Argentina may set up a mechanism for mutual inspection of their nuclear programs. This is one of the proposals that the Nuclear Program Evaluation Committee put forward to President Jose Sarney on 17 April. The proposal was justified on the grounds that Brazil and Argentina have made considerable progress in this field. The committee also concluded that Brazil must adopt a nuclear program to develop its own technology by the year 2000.

Committee President Jose Israel (Walker) has said that our hydroelectric potential will meet our energy demand only until 2010, at most.

[Begin (Walker) recording] The first conclusion the committee reached is that the Brazilian nuclear program is facing serious difficulties, despite the fact that it is vital for meeting our electric power demands over the next few decades. Based on Eletrobras [Brazilian Electric Power Companies, Inc] data, the committee concluded that our electric power demand will surpass our hydroelectric potential by 2005 or 2010, and that it will be necessary to count on electric power generated with coal or with nuclear energy. [end recording]

The committee also emphasized the need to nationalize the nuclear research program. To this end, the National Nuclear Energy Council will have to be divided into two sections: one to deal exclusively with [word indistinct] and development, and the other to take care of the regulations, supervision, and authorizations affecting the companies of the sector.

/9738

CSO: 5100/2060



BRAZIL

# SEABRA, REX NAZARE COMMENT ON CURRENT STATUS OF PROJECTS

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 18 Mar 86 p 3

[Text] Rio de Janeiro--Licinio Seabra, president of Nuclebras, asserted yesterday that the government is likely to absorb part of the company's debts, but added that the commission reevaluating the nuclear program will likely propose a "shrinkage" of the state enterprise. In that event, the Nuclebras subsidiaries responsible for operation, construction and engineering of nuclear plants would most likely become part of the electrical sector, being absorbed by Furnas and Eletrobras.

At the First Brazilian Nuclear Energy Congress, in Rio, Licinio supported continuation of the nuclear program, which he believes needs, during the period of absorbing technology, nonreimbursable funds, as it cannot show immediate results.

The Nuclebras president also spoke in favor of the project for enriching uranium by the jet-nozzle process, now being conducted by NUCLEI [Nuclebras Isotope Enrichment, Inc] in Resende, asserting that only after 2 or more years will Nuclebras be able to ascertain the feasibility of this process from the industrial point of view and how much investment it will require.

Meanwhile, Rex Nazare Alves, chairman of the National Nuclear Energy Commission [CNEN], recalled that the autonomous nuclear program always sought to use resources existing within the country as a basis and to depend upon its own technology. He explained that the CNEN was seeking to develop its own technology in the fuel cycle to provide other alternatives for the uranium-enrichment process.

The CNEN chairman also emphasized that the program for building a domestic research reactor is progressing well. According to him, the conceptual design of the domestic research nuclear reactor is now ready, prepared by engineers at the Minas Gerais Federal University. Most of the components are being developed and this prototype will be produced entirely by domestic industry. Construction of this reactor should begin in the next few months and the construction period will be 4 to 5 years.

According to Marcio Costa, director of Furnas Power Companies, Inc., the Angra 1 plant should enter commercial operation by the end of May, after finishing the replacement of condensor tubes, currently of copper, by tubes of a titanium alloy which will not rust when in contact with fluoridated water. After this repair, Marcio Costa believes the Angra 1 power plant will be in suitable condition for entering commercial operation, after going through another inspection by the CNEN.

According to Mario Costa, operation of Angra 1 is essential for the Furnas system, as supply is currently very vulnerable. Transporting huge amounts of energy for long distances reduces the reliability of the system and any accident to a 500-KV line can leave Rio in the dark, unless energy is brought in from thermoelectric power plants.

As this is one of the worst drought years of recent times and as the Southeast is already sending 1.2 million kilowatts to the South region, there remains no alternative but to begin operating thermoelectric plants that use diesel fuel and coal, which would result in additional expenditures of \$300 million. For purposes of comparison, he said that the Piratininga thermoelectric plant spends \$160 million to produce 400,000 kilowatts, while Angra 1 consumes only \$20 million annually to produce 626,000 kilowatts, which is why it is essential.

8834

CSO: 5100/2059



BRAZIL

# NUCLEN HEAD WARNS AGAINST DIVISION OF NUCLEBRAS SUBSIDIARIES

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 20 Mar 86 p 33

[Text] Rio de Janeiro--Carlos Syllus Martins, director of NUCLEN (Nuclebras Engineering, Inc.), yesterday warned against spinning off Nuclebras subsidiaries according to the plan proposed by the commission that is reevaluating the nuclear program, stressing that construction of a nuclear plant is not a conventional undertaking and "there are substantial risks in transferring NUCLEN to Furnas or Eletrobras."

At the First Brazilian Nuclear Energy Congress, the NUCLEN director said that three nuclear power plants have been built in the United States and are unable to operate because construction defects have prevented their obtaining a license. This is because they were built as conventional construction jobs, in which the construction phase is independent of the installation phase.

Syllus Martins pointed out that the construction and installation phases must be undertaken simultaneously and that for 10 years Nuclebras has been following this procedure "and sees no advantage in changing existing work methods." He further expressed fears that, if the nuclear program is reactivated, Nuclebras will be unable to reassemble its technical personnel.

He explained that, of the 130 engineers trained in Germany, 35 have already left NUCLEN, which "has missed their technological expertise." If the nuclear program were to be given a green light, "we would have trouble resuming the pace of 3 years ago." Even among the private industrial firms that adapted themselves to the needs of the nuclear program, "there is no longer the slightest enthusiasm," he added.

According to him, the consequences of decelerating the nuclear program are extensive, as the technical teams "have become dispersed and, even if there again were sufficient funds, Nuclebras would have to make a considerable effort to reverse the expectations of technical personnel, who have become discouraged by current prospects."

Considerable enthusiasm was displayed by scientists attending the Congress, who feel that the nuclear sector has already seen its worst days and will now recover its importance and construction will be resumed. Several asserted that the commission reevaluating the nuclear program, besides recommending to [Mines and Energy Minister] Aureliano Chaves that Angra 2 and 3 be carried out at a pace that at

least makes up for lost time, is likely to request construction of another unit at the Adm Alvaro Alberto nuclear plant, to be called Angra 4.

Among representatives of private companies such as Confab, Cobrasima, Bardella, and consulting firms such as Natron and Promon, as well as construction contractors such as EBE (Brazilian Engineering Company) and Norberto Odebrecht, the climate was one of discouragement and distrust, in view of the fact that Nuclebras still owes them 80 billion cruzeiros.

8834

CSO: 5100/2059

BRAZIL

BRIEFS

**CNPQ HEAD ON TECHNOLOGY IMPORTS--**Brasilia--Reward competence, put pressure on the government to show that scientific and technological development is important for the nation and facilitate importation of technology to achieve the sector's proper development. These are some of the principal goals of the new president of the National Council for Scientific and Technological Development (CNPq), Clodowaldo Pavan, introduced yesterday by Science and Technology Minister Renato Archer. The new CNPq president will take office Thursday at 1100 hours. Clodowaldo, 66, from Campinas, Sao Paulo, has been serving three consecutive terms as president of the Brazilian Society for the Advancement of Science (SBPC). He is a biologist, a professor of genetics at Campinas State University and was chairman of the CTA [not further identified] of the Foundation for Research Support of Sao Paulo State. The new CNPq, as Clodowaldo called it, will be governed by a new statute, already approved by President Sarney, which is being studied by the president's legal staff. The new statute provides for restoration of a Deliberative Council, abolished in 1974, composed of 15 members, 8 of them from the scientific community, with an executive directorate. "This makes it possible to strip the presidency of absolute power, making the institution more democratic and providing effective participation by the scientific community," asserted Clodowaldo. [Text] [Sao Paulo O ESTADO DE SAO PAULO in Portuguese 1 Apr 86 p 34] 8834

**RE-EVALUATION COMMISSION RECOMMENDATIONS--**Dissolution of Nuclebras Engineering, Inc. (NUCLEN), a subsidiary of Nuclebras; denationalization of Nuclebras Heavy Equipment, Inc. (NUCLEP); guaranteed funds to complete the Angra 2 and 3 nuclear plants; and creation of a higher authority attached directly to the Presidency of the Republic to direct all activities of the Brazilian nuclear program. These are some of the major points to be submitted to President Jose Sarney on 19 April by the commission that is evaluating the Brazilian nuclear program. The members of the commission, headed by Jose Israel Vargas, met in Rio for the last time, to analyze the points to be included in the final report. The most delicate matter to be submitted to the president is whether more plants should be constructed beyond the first two. According to the agreement signed with Germany in 1975, Brazil promised to build four plants in addition to Angra 1. Angra 2 and 3 are in construction and, in compensation, the German firm Kraftwerk Union (KWU) will transfer all technology for plant construction and for the fuel cycle. [Text] [Rio de Janeiro O GLOBO in Portuguese 27 Mar 86 p 26] 8834

CSO: 5100/2059

EGYPT

#### ATOMIC ENERGY AGENCY DIRECTOR INTERVIEWED

Amman AFAQ 'ILMIYAH in Arabic Jan-Feb 86 pp 18-21

[Interview with Dr Muhammad 'Izzat 'Abd-al-'Aziz, deputy director of the Egyptian Atomic Energy Authority, by Taysir Subhi: "We Will Build a New 20-Megawatt Nuclear Reactor in Anshas; We Will Dispose of Wastes Not in Sinai, but in a Nuclear Furnace; Arabic Nuclear Integration Is Necessary, Political Disputes Must Be Overcome to Achieve It; Uranium Is Present in Arab Phosphates, Its Extraction Awaits a Decision on Integration"; date and place not given]

[Text] In this feature, AFAQ 'ILMIYAH continues its presentation of Arabic scientific research institutions and centers. The magazine is attempting through inquiry and dialogue with those responsible for these centers to shed some light on their plans, accomplishments, problems, and projects for the future.

In this issue we discuss an Egyptian Arab scientific institution, the Atomic Energy Authority in Cairo. A representative of AFAQ 'ILMIYAH met with Prof Dr Muhammad 'Izzat 'Abd-al-'Aziz, deputy director of the Atomic Energy Authority.

Dr Muhammad 'Izzat 'Abd-al-'Aziz, deputy director of the Atomic Energy Authority, was kind enough to answer a number of questions. We present the most important of them here.

Obstacles to Work: Inadequate Funding, Emigration of Experts

[Question] I think it would be natural for me to begin, when the subject concerns an Arab institution, with a question about the obstacles to work. Can you tell me about these as relates to the Atomic Energy Authority?

[Answer] There are several difficulties, obstacles, and bottlenecks hindering the progress of work. Perhaps the first of these obstacles is the serious lack of funding. Over a number of years, inadequate budgets have resulted in the obsolescence and breakdown of much scientific apparatus and have made the projects and plans of the authority so much ink on paper. Add to that a more serious problem represented by the emigration of a not insignificant percentage of experts and workers in the agency.

## Cooperation Agreements

[Question] At this stage in the development of your agency, you must have a pressing need to obtain more of the expertise of other countries in this advanced field. What are the most important agreements for scientific cooperation that you have concluded with foreign agencies?

[Answer] Since the authority was founded, agreements for scientific cooperation have been concluded with several Arab and foreign scientific agencies and institutions. Among the most prominent cooperation agreements are those with West Germany, France, Italy, India, America, and East Germany. By these agreements, we obtain apparatus and equipment, send missions for training in these countries, exchange scientific visits, carry on joint research, as well as other potential areas of cooperation.

The Egyptian Atomic Energy Authority previously concluded a bilateral agreement with the Soviet Union for cooperation in areas relating to the peaceful uses of nuclear energy. The Atomic Energy Authority is also working to strengthen its relations with scientific institutions, universities, and ministries inside the Arab Republic of Egypt and outside.

## Arab Nuclear Experiences

[Question] You previously worked as consultant to the Atomic Energy Authority in Libya. Could you tell us about your experience there?

[Answer] Yes, I worked for a long time in Libya and took part in establishing the Center for Nuclear Research there, one of the largest nuclear centers in the Arab world. In that center, they have possibilities not available in many of the other Arab nuclear centers. We were able to establish a nuclear fusion research laboratory where important scientific research is now going on aimed at creating an alternative source of energy relying for its basis on nuclear fusion.

In Egypt, we proposed establishing a nuclear fusion laboratory that would include the system known as Tokomak. This system will shortly be used in the first experimental nuclear fusion reactor built by the European Community. This reactor, located in Britain, is known as (JIT). While we are talking about nuclear fusion reactors, we ought to mention that there are experimental reactors of this kind in the Federal Republic of Germany and the Soviet Union.

## Military Nuclear Research

[Question] As is well known, Egypt has signed the International Agency for Atomic Energy treaty to prevent the spread of nuclear weapons signed in Vienna on 7 October 1981. While Egypt is bound by it, the Zionist entity [Israel] has not signed this treaty and is not bound by its provisions. What do you say about this?

[Answer] What you have mentioned about Egypt's signing the treaty of the International Agency for Atomic Energy is true. The Arab Republic of Egypt strives to use nuclear energy for peaceful purposes. In return, Egypt receives



support from the agency and from numerous international atomic agencies and institutions. As for the refusal of some states to sign this international treaty, it is because they possess nuclear weapons. I do not believe the International Agency or its member states, including Egypt, will stand with hands tied in the face of any "stupidities" committed by any of the nations that have not signed the treaty to prevent the spread of nuclear weapons. Until now, Egypt has not turned to military applications.

#### Nuclear Fuel Plant

[Question] Why does Egypt intend to buy a plant to produce nuclear fuel?

[Answer] It is no secret that we have contracted with foreign agencies for the purchase of a plant to produce nuclear fuel. By means of this plant, it will be possible to produce nuclear fuel in practical quantities. We recently received a large part of the equipment and production in the plant is expected to begin early next year. The plant will be one of the basic installations working toward the application of nuclear research for peaceful purposes and toward supporting development plans. It should be mentioned that this project was carried out in cooperation with the International Agency which is continually offering us material and moral support.

#### Alternative Energy

[Question] At a time when the oil reserve is dwindling, do you have any projects that aim at providing alternative sources of energy?

[Answer] The quantity of oil that Egypt possesses will be exhausted within 10 years. In order to provide alternative sources of energy, the Atomic Energy Authority has made plans that have now entered the stage of implementation. Egypt has invited international bidding for the construction of three nuclear power plants. The first plant will be constructed in an area 160 km west of Alexandria. It will have a capacity of 1,000 megawatts, and its cost will be \$1.85 billion (American). The costs of building this plant will be covered by a loan from a banking consortium in which a group of European countries participate. The second nuclear power plant will be of the double type with a capacity reaching 2,000 megawatts. Its cost of \$2.3 billion will be financed by a loan from the governments of France and Italy. A third nuclear power plant, with a capacity of 1,000 megawatts, will be built at a cost of \$1.4 billion. It will be implemented by a loan offered by Spain, Belgium, and Japan.

#### Why Does Arab Nuclear Integration Not Take Place?

[Question] One notices that a number of Arab states possess a number of atomic institutions, but one also notices that there exists no kind of coordination and cooperation among them.

[Answer] This is true. In some of the Arab states there now are significant research institutions. I have already spoken about the advanced Libyan experience in the field of nuclear research. Another experience is in Iraq. There are attempts under way in Jordan and perhaps in other Arab countries. These



are experiments, institutions, and attempts scattered here and there. The question of coordinating the efforts within the framework of Arab integration is a matter of utmost importance and is the wish of every Arab. We have often called for the realization of this wish. At every meeting, we have emphasized the importance of Arab integration in all fields, especially scientific ones. Yet, in spite of many demands and repeated emphases, no step on this path has been taken. Is it because the basic elements of integration are not sufficiently available--or what is it? The basic elements are there in abundance, but why do we not integrate, at least on the scientific level? I do not know. I think politics stand as a stumbling block, given the variety of political ideologies, directions, and movements.

It is my belief that this obstacle can be overcome. There are many examples of this. The Soviet Union participates in an electrical network with a number of (Western) European states. The European Community takes part in establishing scientific centers and institutions, funding and supporting them in order to realize common profit and benefit, in spite of the differing policies and ideologies of the states of this community.

Just as there exists the possibility of establishing an Arab center for nuclear research, there is an even greater possibility of establishing electrical networks at the level of the Arab world, especially if we are able to build nuclear fusion reactors.

#### The Regional Center for Radioactive Isotopes

[Question] What has happened with the Regional Center for Radioactive Isotopes?

[Answer] This center was established early in the sixties with its headquarters in al-Duqqi (Cairo) and is supervised by a council composed of representatives of the Arab states. It was established with the goal of training Arab scientists from all specializations in the use of radioactive isotopes in all applied fields. The center was made regional so that it might offer its services to all the Arab countries. I would take this opportunity to announce that the center welcomes the cooperation of Arab scientific institutions and centers and is ready to receive missions from any Arab agency interested in the activities of the center and wishing to take advantage of its services.

#### Nuclear Wastes

[Question] In recent times, there have been reports that you intend to bury the nuclear wastes that you have accumulated in the Sinai desert. How true is this?

[Answer] It is not the intention of Egypt to do any such thing. We have pondered this question for a long while and have concluded that the best way to dispose of nuclear wastes is the kind of nuclear furnace called a thermal plant. This plant consists of a huge center containing several thermal cells. Such a plant can be used effectively to dispose of medium- and low-level radioactive wastes. We set out to establish such a center several years ago.

It will begin operating within the next 2 years. Construction and equipping of the plant were partly funded by the International Agency for Atomic Energy, on condition that no other such plant be built in any of the states of the region. This means that permission will not be given to construct another center for nuclear waste disposal in the region due to the high costs and the difficulty of providing the equipment necessary for its operation. All states in the region will be allowed to use the thermal plant located in Egypt.

The equipment for the thermal plant is currently being manufactured in the Federal Republic of Germany in accordance with the agreement the two countries have signed on the subject. This nuclear furnace can burn up about 15 kg of wastes in 1 hour and can operate night and day. By obtaining this equipment, we have been able to solve the problem of nuclear wastes. By announcing this project, we have replied to the reports of our intending to bury our nuclear wastes in the Sinai desert.

#### Star Wars

[Question] What do you have to say about Star Wars?

[Answer] I think it unlikely that Star Wars can be implemented. If [such a war] were to break out it would lead to the destruction of all forms of life. I think the question of the arms race between the two superpowers, the Soviet Union and America, is a political question in the first instance, the goal being acquisition of the power of decision and of a political position through the acquisition of these weapons of destruction. The destructive consequences that resulted from the Hiroshima and Nagasaki bombs will perhaps deter mankind and prevent the repetition of such a tragedy for mankind.

#### New Reactor in Anshas

[Question] In what stage is the Egyptian Atomic Energy Authority now?

[Answer] We have now moved from the stage of establishing and forming the foundation of nuclear science into a new stage that will witness a broadening of the uses of nuclear power, development, and expansion of all existing institutions, and modernization of our equipment and machinery. Among the projects occupying us at the moment is the construction of a new nuclear reactor in the Anshas area with a greater capacity. The present Anshas reactor has exhausted all of its objectives and achieved all the goals and purposes for which it was built. Its assumed lifespan is over. This Russian reactor played a part in creating a broad base of nuclear science and in graduating a great many trained scientific cadres. It has produced radioactive isotopes as well as nuclear fuel. It continues to operate because of numerous modifications we have performed on it. The capacity of the Russian reactor does not exceed 2 megawatts.

The new reactor that we wish to acquire has a capacity of 20 megawatts and will be able to give us a great impetus in electronics. This is something of utmost importance, especially in the coming stage, which will witness the practical production of nuclear fuel, experiments with nuclear fuel, and the building of nuclear power stations.

## Uranium From Phosphate

[Question] Why is the uranium from Moroccan or Jordanian phosphate not being used?

[Answer] It is something that is possible, but it requires first of all that decisions about integration be made at the level of joint Arab activity and that close cooperation take place between the relevant Arab countries. Phosphate is a natural source of uranium that should not be overlooked.

[Box, p 19]

## The Egyptian Atomic Energy Authority in Outline

The Egyptian Atomic Energy Authority was established in 1955 to take advantage of this energy and of its uses for scientific and applied purposes. The authority includes four scientific centers:

- the Nuclear Research Center
- the National Center for Research on Radiation and Its Technology
- the Thermal Laboratory Center
- the Nuclear Regulation and Security Agency.

The Nuclear Research Center, which is the center of the authority's activity, includes 12 scientific sections. At work on implementing its scientific program are 37 professors, 50 assistant professors, 94 instructors, 117 assistant instructors, and 53 tutors, in addition to a staff of workers, engineers, technicians, and administrators numbering about 2,000.

Current research at the center aims at supporting the national nuclear energy program through the programs of the following sections: reactors and nuclear metals, neutron and reactor physics, and nuclear chemistry. This research also aims at creating a foundation of nuclear science and trained scientific cadres in various nuclear activities, both applied and theoretical. This is in addition to the center's applied research into the uses of radioactive isotopes in radiation biology and agriculture, and other subjects.

The activity of the Atomic Energy Authority in the field of practical applications is embodied in the National Center for Research on Radiation and Its Technology. The latter includes sections for radiation biology, radiation research on plant production, radiation chemistry research, radiation physics research, radiation engineering research, and research into developing existing industries and improving their products.

One of the newest scientific centers affiliated with the Atomic Energy Authority is the Nuclear Regulation and Security Agency which was established in 1982. This agency has prepared studies on the regulatory steps and measures necessary for the issuance of nuclear power plant licenses, on the

security standards for nuclear power stations, and on regulations for licensing operating crew members for nuclear power plants.

Also among the authority's centers is the Thermal Laboratory which carries on research on the analytic chemistry of the combustible fuel cycle, radioactive environmental pollution, radiation protection and security, alpha ray research, the treatment of radioactive residues, combustible nuclear fuel cycle engineering, and the chemistry of combustible nuclear fuel.

12937/12859

CSO: 5100/4608

19 May 1986

EGYPT

## NUCLEAR POWER PROJECT NEW BIDS SOUGHT

London MIDDLE EAST ECONOMIC DIGEST in English 4 Apr 86 pp 10, 11

[Text] The government has asked the three bidders for the country's first nuclear power project to put in fresh offers for the \$1,000 million-plus contract by 20 April. Earlier in March, the client--the Nuclear Power Plants Authority--extended the validity of the original bids by four months, to 25 June (MEED 1:3:86).

The three bidders for the plant--to be built at El-Dabaa--are West Germany's Kraftwerk Union (KWU), the US' Westinghouse Electric Corporation and a Franco-Italian consortium led by France's Framatome. They have been assured that the project will go ahead by Prime Minister Ali Lotfi and the client, but diplomats in Cairo say other ministers are questioning the project's viability.

One possible outcome is for a letter of intent to be awarded to one or more of the bidders, followed by protracted negotiations, diplomats say. A contract award has already been delayed several times since May 1985.

/9317

CSO: 5100/4610

INDIA

GANDHI ON NUCLEAR POLICY IN RELATION TO PAKISTAN

Madras THE HINDU in English 9 Apr 86 p 1

[Article by G.K. Reddy]

[Excerpt]

NEW DELHI, April 8.

The Prime Minister, Mr. Rajiv Gandhi, said today that if Pakistan acquired nuclear weapons, India will have to "think seriously about its own option," since the country could not afford to remain complacent in the face of such a sudden shift in the strategic balance in the region.

In his reply to the debate in the Lok Sabha on the Defence Ministry's demands for grants, he disclosed that India had some very definite indications that Pakistan was going ahead with its nuclear programme.

The Prime Minister had made a pointed reference to this threat after almost six months of silence on the subject. But much of what he said today was intended to stress the point made in the Defence Ministry's annual report that "we must be cognisant of the fact that Pakistan has moved closer to acquiring the capability to make nuclear weapons which had an obvious bearing on our security."

### Commitment to peace

Assuring all concerned that India was committed to using atomic energy only for peaceful purposes, Mr. Rajiv Gandhi stressed that it did not possess any nuclear weapons, nor was it interested in acquiring them. But the country will have to reconsider its position if Pakistan produced a bomb posing a serious threat to it.

The Prime Minister dealt with the nuclear issue not because he wanted to tell the world that India would not hesitate to exercise the option if Pakistan succeeded in acquiring nuclear capability, but to assure the members who raised the issue during the debate that the Government was not being complacent. It was in this context that he said that India would continue to mobilise world opinion, working in close concert with other like-minded countries to persuade and prevent Pakistan from persisting in its bid to acquire nuclear weapons.

/9317  
CSO: 5150/0091



INDIA

NUCLEAR POWER BOARD CHAIRMAN SPEAKS TO ENGINEERS

Calcutta THE TELEGRAPH in English 15 Mar 86 p 1

[Text]

Calcutta, March 14: The department of atomic energy will soon raise the tariffs for nuclear power in its bid to mop up resources for investment in creating additional nuclear power generation capabilities, Dr M.R. Srinivasan, chairman of the Nuclear Power Board (NPB), said here today.

Addressing a meeting of the Association of Indian Engineering Industry (AIEI) here today, Dr Srinivasan said the atomic energy department was taking this step in addition to its plan for floating power bonds to raise money needed to finance its Rs 1,400-crore scheme in nuclear power in the Seventh Plan.

According to him, the Centre has assured the Atomic Energy Commission an outlay of Rs 600 crores by it in the Seventh Plan. The projected expenditure approved by the Centre in this Plan period is Rs 1,400 crores, against the Commission's demand of Rs 2,020 crores, he added.

Commenting on the demands for setting up a nuclear power plant in the eastern region, Dr Srinivasan said he, as head of the site selection committee for new nuclear plants, had recommended certain location in West Bengal and Orissa.

Dr Srinivasan said the country's 15-year nuclear power plan, which envisaged an installed capacity of 10,000 MW in atomic plants, would have 12 reactors of 235-MW and 10 of 500-MW besides the ones already planned. Among these four 235-MW plants and two 500-MW reactors have been approved by the Centre, he said.

Construction work for the country's first 500-MW fast breeder reactor will begin by 1987 and the work of this prototype reactor will depend on the success of the operation of the fast breeder test reactor at Kalpakkam

/9317

CSO: 5150/0085

INDIA

NUCLEAR POWER BOARD CHAIRMAN ON EQUIPMENT NEEDS

Bombay THE TIMES OF INDIA in English 20 Mar 86 p 13

[Text]

BOMBAY March 20: Dr. M. R. Srinivasan, chairman, Nuclear Power Board (NPB) has hit out at the Indian engineering industry for a lack of innovation in manufacturing. Except product technology obtained from abroad, the industry in most cases has not gone beyond the design and process technology. Other countries having once imported products have developed further on all aspects on their own, he said.

Delivering the keynote address at a workshop on "Equipment requirements of nuclear power plants", organised by Association of Indian Engineering Industry (AIEI), Dr. Srinivasan said most of the units had still a lot of learning to do. The fragmentation of the industry is bad. The industry will have to reorganise itself and make introspection. The capability is there and if it is well organised, the country can easily exceed the target of 10 per cent nuclear power by the turn of the century.

The nuclear power programme in the coming years will no longer accept delays in delivery of equipment as it is planned to bring down the gestation period of projects to cut down on costs, he said. The industry will have to gear up in time schedules and in standard-

isation of components. Power plant equipment in future will have to operate with the highest reliability. The NPB will short list vendors for equipment and encourage units manufacturing at minimum cost. He blamed the high cost of equipment due to lack of competition. For the nuclear power programme, it is planned that a large part of inputs will have to be from local sources.

Mr. K. N. Shenoy, vice-president, AIEI, said in many cases local equipment became costlier since, imported equipment was allowed with concessional rates of duty. He gave as instances, the import of fertiliser plants and equipment and power equipment, of late. Another reason for the high prices is due to low capacity utilisation. He urged that the industry be supplied steel at international prices. The industry wants competition but does not want to face dumping.

Mr. T. S. Champaknath, chairman of AIEI's nuclear plant division, said the industry needs to upgrade its technology. The wide gap in funds required for the NPB's nuclear power programme can be bridged from the capital market, he said. The industry is confident to help achieve 10 per cent power supply from atomic energy by the end of the century.

/12851

CSO: 5150/0087

INDIA

# NEED FOR FUNDS STRESSED BY POWER BOARD CHAIRMAN

Madras THE HINDU in English 6 Apr 86 p 12

[Text]

TIRUCHI, April 5.

"If the goal of 10,000 MW of nuclear power generation is to be realised we may have to mop up resources either through a hike in the tariff or by going to the people for subscription, as there is a major constraint of funds with the Centre, said Dr. M. R. Srinivasan, Chairman, Nuclear Power Board.

Talking to newsmen here today, Dr. Srinivasan hoped that the second unit of the Kalpakkam power station, which broke down recently would start feeding power to the grid in a day or two.

Dr. Srinivasan dismissed reports in a newspaper mentioning that there was something wrong in the quality of the transformer oil as incorrect. BHEL supplied the oil. The quality was checked in February and nothing was found wrong.

He said a special BHEL wagon had reached Narora (in U.P.) to bring a transformer to replace the one in the first unit at Kalpakkam which developed major snags about 15 days ago.

Dr. Srinivasan said by five or six weeks the transformer would be put into operation at Kalpakkam. The problem of vibration in the turbines had been resolved.

Asked about the prospect of the next atomic power plant coming up in Tamil Nadu, Dr. Srinivasan said the site at Koodankulam in Tirunelveli had several plus points.

The Committee set up to select sites for the 500 MW nuclear power plant, of which he himself was a member, had recommended several sites and it was for the Government to take a decision. The work on the plant was expected to begin by 1987.

/9317  
CSO: 5150/0090

INDIA

## BUDGET PROVISIONS FOR NUCLEAR POWER UNITS TOLD

Madras THE HINDU in English 24 Mar 86 p 6

[Text]

NEW DELHI, March 23

The total provision in the 1986-87 Central budget (revenue and capital sections together) on the existing and upcoming nuclear power projects in the country is Rs 469.21 crores. Out of this, the provision for Plan schemes is Rs 240 crores and the rest is for non-Plan expenditure.

The 1986-87 budget provision is about Rs 58.45 crores (Rs 9.63 crores on the revenue account and Rs 48.82 crores in the capital section), higher than the revised estimate for 1985-86. But the revised estimate for the outgoing year (Rs 410.76 crores) is Rs 18.54 crores lesser than the original provision of Rs 429.30 crores in the 1985-86 budget.

Among the projects for which the higher 1986-87 outlay in the revenue section is earmarked are Rs 3.52 crores for the Madras Atomic Power Station (MAPS), and Rs 7.22 crores for the payment of interest charges on heavy water held in stock.

**Procurement of materials:** On the capital account the higher 1986-87 outlay is intended for advance procurement of materials and equipment for future atomic power stations (Rs 14.04 crores), Kakrapar Atomic Power Project in Gujarat (Rs 19.70 crores), Narora Atomic Power Project in U.P. (Rs 8.98 crores), Kaiga Atomic Power Project in Karnataka (Rs 1.63 crores), Rajasthan Atomic Power Project units 3 and 4 (Rs 3.40 crores), two new 500 MWe atomic power stations (Rs 2.75 crores) and development works for 500 MWe reactors (Rs 4.20 crores).

But the increase is offset by the reduced provision for the MAPS units 1 and 2 to the tune of Rs 7.72 crores.

The country's first atomic power station at Tarapur near Bombay, which has two boiling

water reactors fuelled by enriched uranium with a total capacity of 320 MWe, has been provided in the 1986-87 budget with Rs 63.39 crores.

The provision for the Rajasthan Atomic Power Station, which has two natural uranium fuelled and heavy water moderated pressurised heavy water reactors with a total capacity of 440 MWe, is Rs 70.37 crores. The first RAPS unit has been operational since December 1973 and the second since April 1981.

The MAPS at Kalpakkam has two pressurised heavy water reactors with a total capacity of 470 MWe. The provision of Rs 73.16 crores for these two units in the budget is mainly for operation and maintenance of the station (Rs 64.95 crores), and for capital expenditure on the procurement of equipment and for civil and electrical works (Rs 8.21 crores).

The first unit of the MAPS was commissioned on July 23, 1983, and became commercially operational on January 27, 1984. The second unit has also become operational since September last.

**Narora station:** The fourth atomic power station to be commissioned in the country will be at Narora. It consists of two 235 MWe units. The budget provides Rs 58.98 crores mainly for the procurement of equipment and for civil and electrical works. Work on the Narora project is going on in full swing.

The Kakrapar project in Gujarat consists of two 235 MWe units. The budget provides Rs 81.08 crores for the procurement of equipment, and for civil, electrical and mechanical works.

The budget provisions for the coming financial year include Rs 53.60 crores for advance procurement of materials and equipment for future atomic power projects.

/12851

CSO: 5150/0088

INDIA

BRIEFS

**BHABHA EXPLOSION DENIED**--Bombay, March 15 (PTI)--Scientists at the Bhabha Atomic Research Centre today denied reports of an atomic explosion in the BARC premises recently. "There was no explosion or accident in BARC and the report is absolutely false," the director, Dr P.K. Iyengar, said. "The last atomic explosion we had was at Pokhran in Rajasthan in 1974," he added. The Janata Party member, Dr V. Venkatesh, had drawn the attention of the Speaker in Parliament during zero hour yesterday to a report that seven scientists were injured in the explosion in BARC a fortnight ago. [Text] [Calcutta THE TELEGRAPH in English 16 Mar 86 p 5] /9417

**NUCLEAR POWER CORPORATION**--New Delhi, March 19 (PTI & UNI)--It has been decided in principle to set up a nuclear power corporation, the minister of state for atomic energy, Mr Shivraj V. Patil, told the Lok Sabha today. He said in a reply to Mr Satyendra Narain Sinha during question-hour the details has yet to be worked out. India is now producing nuclear fuel just sufficient for its own needs, Mr Patil told Mrs Kishori Sinha. Nuclear energy: A target for generating 10,000 MW of nuclear energy by the end of the century had been fixed by the government, Mr Patil said. In addition to ongoing projects, setting up of two new atomic power stations each of 2 x 235 MW at Kaiga in Karnataka and expansion of the Rawatbhata in Rajasthan had been approved during the seventh plan. [Text] [Bombay THE TIMES OF INDIA in English 20 Mar 86 p 16] /12851

CSO: 5150/0089

LIBYA

BRIEFS

COLLEGE OF NUCLEAR ENGINEERING--The College of Nuclear Engineering in Tajurah was opened this morning. A ceremony was held on this occasion which was attended by the secretary of energy and heads of diplomatic missions accredited to the socialist people's Libyan Arab Jamahiriya. The opening ceremony was also attended by the secretary of the People's Committee of the College and the secretary of the Students' Congress. [Text] [Tripoli Domestic Service in Arabic 1230 GMT 14 Apr LD]

/12929

CSO: 5100/4609



PAKISTAN

PEACEFUL AIM REAFFIRMED TO INDIA

BB191122 Karachi Domestic Service in English 1005 GMT 19 Apr 86

[Text] Pakistan has once again categorically told India that its nuclear program was absolutely for peaceful purposes and that Pakistan has neither the intention nor the resources and capability for nuclear weapon program.

This reiteration was made by Foreign Secretary Mr Niaz A. Naik during his talks with his Indian counterpart, Mr Venkateswaran, in New Delhi yesterday. The question was raised in the context of discussion on the understanding reached between President Mohammad Ziaul Haq and the Indian prime minister, Mr Rajiv Gandhi, on the 17th of December last that neither side would attack each other's nuclear installations. Draft of the agreement to this effect was almost ready.

The foreign secretary said to demonstrate its seriousness Pakistan had made a number of proposals at international, regional, and bilateral levels to achieve the objective of keeping South Asia free of nuclear weapons. He wondered why the question was still raised in India that there is concern that Pakistan's program is not entirely for peaceful purposes. Strongly refuting the allegation, the foreign secretary said this highly organized campaign was just to malign Pakistan.

The foreign secretary said both sides agreed that mutual dialogue must continue and that the momentum of progress in normalization process which had slowed in recent past must be restored. Both sides agreed to propose possible dates shortly for the meetings for subcommissions in New Delhi and a joint commission meeting in Islamabad.

The two sides are also in the process of negotiating mutually convenient date for the second round of talks between the two defense secretaries to further take up their discussions (on) Siachen Glacier. They accepted to meet in the second half of next month.

/9274

CSO: 5100/4743

SOUTH AFRICA

INTERNATIONAL CONFERENCE ON NUCLEAR WASTE PLANNED

Cape Town DIE BURGER in Afrikaans 4 Mar 86 p 3

[Article by our environmental correspondent: "Nuclear Power Countries To Meet in South Africa on Waste"]

[Text] Representatives of all the most important nuclear power countries in the West and possibly also representatives from behind the Iron Curtain will be in Cape Town in September of this year for a conference on radioactive nuclear waste disposal.

Sixty papers are expected to be delivered at the conference, 40 of them by speakers from abroad. The Atomic Energy Corporation of South Africa (AEK) is organizing the conference.

Minister of Mineral and Energy Affairs Danie Steyn will open the conference, which will run from 7 to 12 September. The main paper will be given by Dr. J. Rometsch, chief of the Swiss nuclear research unit. Among the speakers will be Dr. J.W.L. de Villiers, executive chairman of AEK.

The public is welcome to attend the conference.

The conference will primarily be concerned with the treatment and disposal of nuclear waste and with our own uranium and nuclear industry. The representatives will also visit South Africa's nuclear waste site in Namakwaland, Vaalputs.

Dr. Dennis Toens, chief of geology at AEK and convener of the conference organizing committee, said yesterday that the emphasis will be on the safe disposal of nuclear waste in dry regions.

"As far as we know, South Africa was the first country to select a site for the disposal and storage of radioactive waste before the country's first nuclear generating plant was placed in service. Vaalputs is one of the best-suited disposal facilities in the world," he said.

125.3  
CSO: 5100/17

SOUTH AFRICA

## NUCLEAR CONTAMINATION OF FRENCH WORKERS DUE TO NEGLIGENCE

Cape Town DIE BURGER in Afrikaans 7 Mar 86 p 6

[Article by our medical correspondent: "Contamination at Koeberg, Four Workers Were Negligent--ESCOM [Electricity Supply Commission]"]

[Text] The four experienced French nuclear workers who were contaminated by radioactive cobalt in a radiation incident at Koeberg nuclear power plant on 20 February breathed in that radioactive material because they neglected safety rules and did not wear respirators.

ESCOM just announced this at a special press conference.

According to ESCOM the total radiation doses the four workers received were 12.8, 3.8, 6.1, and 0.5 millirem respectively. These are very small doses of radiation.

The highest dose (12.8 millirem) is equivalent to about one fourth of the dose that a human receives in a chest X-ray and is equal to the radiation received during a round trip flight between Cape Town and London.

The maximum permissible dose of radiation a nuclear worker can receive a year according to the strict South African regulations is 5 rem (5000 millirem).

High doses of radiation can lead to chemical alterations in the cell, damage of matter in the nucleus, and in the end to cell death. Medical research indicates that an acute radiation dose of 15,000 millirem is required before an alteration in the matter of body cell nuclei is observable.

The radioactive cobalt-60 breathed in should be broken down and expelled by the bodies of the four workers within 3 months.

Unnecessary

Although the four nuclear workers received small doses of radiation, it is ESCOM policy that nobody be exposed to more radiation than is absolutely necessary. According to ESCOM the incident was unnecessary. To prevent nuclear workers from becoming lax in regard to safety regulations, the investigatory committee recommended that workers should have to attend a course on radiation dangers and safety measures at least every 2 years.

12593  
CSO: 5100/17

SOUTH AFRICA

BRIEFS

GOURIQUA NUCLEAR INSTALLATION DORMANT--A nuclear research installation is going to be built near the mouth of Gourits River, although the area, Gouriqua, is just now being developed to offer the basic infrastructure for future research facilities. That is what the minister of mineral and energy affairs, Mr Danie Steyn, said yesterday in the Volksraad in reply to a question. He said no final decision has yet been made on the nature of the facilities which are going to be set up. "Due to present financial circumstances, the Gouriqua project can be virtually regarded as dormant. It is only of a sufficient size to productively employ the personnel who are already there." Mr Steyn said that before the ground was purchased a comprehensive environmental impact study was done and made available for the public's perusal in June of 1983. The study is being continued in consultation with consultants and universities. Further studies will be done as soon as a decision has been made on the specific facilities that are going to be set up. [Text] [Cape Town DIE BURGER in Afrikaans 26 Mar 86 p 3] 13084

CSO: 5100/20

USSR

## U.S. SAID TO LET ISRAEL OBTAIN NUCLEAR ARMS MATERIALS

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 28, 29, 30 Mar 86

[Article by Vladimir Mikhaylov: "Hunt for the Bomb"; first four paragraphs are SOTSIALISTICHESKAYA INDUSTRIYA introduction]

[28 Mar 86 p 3]

[Text] ...In December 1957 a plant in Apollo (Pennsylvania, United States) obtained a federal permit to reprocess nuclear material and became the sole private enterprise specializing in the production of fuel for nuclear-powered submarines of the U.S. Navy. Ten years later it was discovered that 259.5 kilos of enriched uranium had disappeared from the enterprise in this time.

...On 18 November 1968 the ("Sheyersberg"), which had been carrying 200 tons of uranium, disappeared without trace on the high seas. A week later it suddenly docked in the Turkish port of Iskenderun. Its holds were empty.

...In November 1974 Karen Silkwood, lab technician at a plutonium-enrichment plant near Oklahoma City (Oklahoma, United States), discovered the puzzling disappearance from the enterprise of radioactive material. In accordance with a union assignment, the activist began her investigation. Setting out for a meeting with an official union representative and a reporter from THE NEW YORK TIMES, she had not driven 10 miles before her car lost control. Silkwood died.

These three incidents, which occurred at different times and in different places, were for many years not connected. It only recently became known that they were all the work of agents of the Israeli special service Mossad, which had from the country's leadership the mission of securing by any means the quantity of radioactive material necessary to produce nuclear weapons.

### I. The Zalman Shapiro Stunt

In their relations with neighboring Arab states Israeli politicians and the Zionist military have always gambled on weapons. The "negotiations" and "good-neighborly relations" concepts do not exist for them: a continuous chain of provocations and aggression--this has been the essence of the entire policy of the Zionist state since the time of its formation.

The Zionists long since concluded that the creation of nuclear weapons could be the "ideal solution" of the Arab question. Israel met with the complete understanding and support of certain circles of a number of Western states. Plans, equipment, technology, raw material--everything necessary for the creation of nuclear weapons--were acquired by various paths and methods by the Zionist military and the scientists working for it. Naturally, these supplies were effected under conditions of the strictest secrecy, for which purpose the Mossad special service was equipped. It was instructed to consider work on the creation of an atomic bomb assignment No 1 and to spare no forces and resources for its accomplishment, stopping at nothing.

In 1958 an installation outwardly resembling a soccer ball appeared in the Negev desert, close to the small town of Dimona. This was a nuclear reactor, although the Israeli Government repeatedly attempted to persuade the public that it was merely a question of a "textile factory". However, this "factory" was guarded far more strictly than many important military facilities.

The territory surrounding Dimona for a radius of dozens of kilometers is encircled by a tight chain of guard posts with an abundance of both the most intricate electronics and specially trained guard dogs. All the airspace above this locale has been declared a prohibited zone. An incident is indicative: during a training flight an Israeli Mirage went off course and accidentally ended up in the Dimona area. There was no questioning whatsoever: the aircraft was shot down at once, and the pilot, who had managed to eject, was shot in the air.

Mossad embarked on fulfillment of its assignment even prior to the start of construction of the reactor. It was at that time that the license for the plant in Apollo was obtained. The request for it had been made at the initiative of Zalman Shapiro, president of the NUMEC Corporation. A well-known chemist and former employee of the U.S. research service and student of the notorious Admiral Rickover--the founder of nuclear submarines--Shapiro was a convinced Zionist, so Mossad knew to whom to turn. His name was well known in Tel Aviv inasmuch as the president of NUMEC had quite often performed the role of agent of the Israeli Defense Ministry.

Uranium began to go missing from the plant almost immediately following the start of its work for the U.S. Navy. In October 1960 even an employee of the Nuclear Regulatory Commission--the body which in the United States monitors the nuclear industry--sent Zalman Shapiro a letter in which he expressed concern in connection with the insufficiently strict supervision of radioactive material. The message said that the commission's inspectors had received information about a loss of enriched uranium from the plant.

In the summer of 1964 a commission inspection again turned up serious violations in accountability at the enterprise. The gaps in the inventories were so glaring that one of the inspectors sounded the alarm. He sent the leadership of the commission a telegram proposing urgent notification of the FRI about the regular losses of uranium. But the plant continued to operate tranquilly.



Finally, in the spring of 1965 the commission carried out a new thorough stocktaking. Its inspectors checked each figure in the accounts and questioned the consignees of products from the plant in Apollo. As a result the disappearance without trace of 80 kilos of enriched uranium was discovered. We would note for comparison that just under 10 kilos of this substance is sufficient for the creation of a low-yield atom bomb.

Shapiro was finally seriously taken in hand. He was questioned by officials of the commission and "confessed" that the missing material had mistakenly been "buried" in radioactive waste storage pits. The commission demanded that this waste be recovered immediately for analysis. But on a variety of pretexts for 6 months Shapiro evaded compliance with this demand.

On 25 September 1965 five high-ranking officials of the commission presented themselves to Shapiro with the official ultimatum: if he did not comply with their demands immediately, all the material on the president of NUMEC, the corporation itself and the management of the plant in Apollo would be handed over to the FBI and federal judicial authorities. Shapiro was forced to give his employees the appropriate instructions.

Work on the recovery of the waste and the analyses were completed only by the year's end. But sensing that his stunt was coming to an end and driven by the impatient demands of Israeli physicists, the president of NUMEC did his utmost. As a result only 7.25 kilos of uranium were discovered in the waste, but as of 31 December 1965 some 173.3 kilos had "disappeared" from the plant.

The commission investigation was headed by one of its executives--James Lovett. He prepared a voluminous report, whose facts and conclusions, according to Lovett's colleagues, automatically entailed the prosecution of Zalman Shapiro and his sentencing to a lengthy term of imprisonment.

But... the report was suddenly killed. Lovett himself declared that upon a closer familiarization with the facts he was unable to find confirmation that the uranium had been stolen. In his assertion, Shapiro had provided a perfectly satisfactory explanation for the disappearance of the radioactive materials. There is an interesting fact shedding light on the change in Lovett's position: some time later he quit the commission and took up not so much a responsible as highly lucrative position in NUMEC.

However, the scandal was heating up. The FBI and the Justice Department had taken up the case. The wheels of the machinery of the law had begun to turn, it seemed. Alas, this only seemed to be the case inasmuch as "mysterious forces" intervened in the course of the investigation, and 9 days later the investigation was ended. Whose intervention was this? Answering this question credibly is difficult, but it would not, I believe, be without interest to acquaint ourselves with two versions of what happened.

In the mid-1960's the CIA's technical service determined the existence in Israel of a laboratory working with a substantial quantity of enriched uranium. It was at approximately that time that the CIA's attention was attracted to regular exercises of Israeli jet aircraft. According to Carl Duckett, who was at that time CIA deputy director for science and technology, these specific maneuvers would make sense "only if they were practicing methods of dropping an atom bomb."

At the same time another CIA subdivision was analyzing the nuclear potentials of certain countries, including Israel. It also drew attention to the report on the nuclear laboratory. From where had the Zionist leadership, which lacked the complex and costly equipment for obtaining highly enriched uranium, been able to acquire a considerable quantity of this material?

Independently of one another, both CIA subdivisions came up with the NUMEC Corporation. They drew attention to Shapiro's frequent trips to Tel Aviv and the fact that since the start of the 1960's the stream of Israeli visitors to the plant in Apollo had been exceptionally great. The Israeli scientist Baruch Sinai and Ephraim Lahav, science attache at the Israeli Embassy in Washington, had gone there particularly often. Furthermore, Baruch Sinai had even been given temporary employment in NUMEC.

A tail was put on Shapiro in the United States and Israel. As a result the CIA drew the firm conclusion that Israel was obtaining radioactive material via NUMEC. It prepared a secret report, which, naturally, immediately came to the desk of Richard Helms, then director of the American espionage department. The latter headed for the White House and demanded a personal meeting with President Lyndon Johnson.

At the end of the audience Helms summoned his closest associates, including Carl Duckett. According to the latter, the CIA director reported that the President was emphatically opposed to any publicity for this affair and demanded that NUMEC not be impeded in its work. Johnson's wishes were carried out.

But there is also another version of how Helms' conversation with Johnson went. NEW YORK TIMES correspondent Tad Szulc, who was unanimously considered a major authority on questions connected with the CIA, conducted an independent investigation. He met and talked with a number of former agency officers who at that time held quite high positions and drew interesting conclusions. According to him, the U.S. President, who had received the CIA report the day before, had summoned Helms, intending to firmly demand that the material be handed over to the FBI and the judicial authorities and that it be examined in the U.S. Supreme Court. The President also intended delivering to Israel an emphatic protest against the piratical operations of its special services.

However, it was the CIA director who persuaded the President of the need to put a stop to this affair ("proceeding from the United States' highest interests") and afford Israel the opportunity to avail itself of American uranium in the future also. Helms assured Johnson that all Tel Aviv's work in the nuclear domain would be monitored by American intelligence and that the CIA would watch to ensure that it not be of a military nature.

...In 1967, when the quantity of stolen uranium constituted 259.5 kilos, Mossad resolved to close off this channel, in connection with which there had already been too much talk. With the help of the patrons of the Zionists it was possible to put a stop to the business without particular noise. Shapiro paid a fine for the "missing" uranium of the order of \$1.1 million

(not from his own pocket, naturally), sold the plant in Apollo and moved to another corporation. There also he continued to carry out Mossad assignments, recruiting scientists for work on technical projects of interest to Tel Aviv. However, the FBI's repeated attempts to begin his prosecution were frustrated owing to interference by the White House staff.

[29 Mar 86 p 3]

[Text] II. Operation 'Lead'

In the summer of 1967, despite the euphoria induced by the outcome of the "six-day war" which had gripped the Zionists, the Israeli leadership, particularly the military, were experiencing serious concern. They had not succeeded in achieving their goal of creating a "greater Israel from the Nile to the Euphrates" owing to the resolute position of the socialist community countries. Tel Aviv found itself in even greater international isolation. The question of uranium arose with new poignancy. And the Zionists resolved to switch to robbery in the full sense of this word.

Now, Robbery

On a hot August day in 1967 14 persons--the "surest of the surest"--had gathered at a top-secret meeting. They were all of like mind here and for this reason did not speak with reticence. But the person expressing himself the most candidly, perhaps, was then Defense Minister Moshe Dayan.

"We have conducted a brilliant operation," he began. "But for reasons known to you we have not been able to solve the Arab question conclusively. If we had had the Bomb, these 6 days would have been perfectly sufficient for us, and a stunned world, confronted with the fact, would have reconciled itself to what had occurred. But we do not have it yet. It is not my business to judge the actual contribution to the common cause of the valiant Mossad officers," he looked steadily at Meir Amit, head of the espionage department, "but, I believe, they were somewhat in haste in winding up the NIMEC operation. In a word, I propose entrusting the organization, which has shown its worth so brilliantly in all previous matters, with the procurement of new consignments of enriched uranium. How they handle this is, I believe, up to them. Stealing or taking by force--the details do not interest us."

The general took his seat. Some of those present nodded in agreement, some were plunged in thought, some looked searchingly at Meir Amit. But it would have been futile seeking in the faces of the statesmen an expression of embarrassment or shame, surprise or disgust. All of them, profoundly convinced that they were honest and decent people, accepted Dayan's proposal concerning theft or robbery as going without saying and containing nothing shameful.

The first action carried out by the Zionist saboteurs had been planned simply and without embellishment, recalling scenes from a Hollywood hit movie. Gangsters in cars blocked a 25-ton truck transporting uranium which belonged to the French Government. Having killed the guard, they drove the vehicle away, put the pursuers off the scent and in a secluded spot transferred the containers with the radioactive material to their transport. With forged

papers, changing car license plates and small private aircraft, the group of Mossad agents delivered the uranium to a secret military base in the Negev Desert 2,000 miles from where it was stolen.

The group leader reported briefly to Meir Amit on the accomplishment of the first operation: "Freight taken. No losses." The chief of the special service reported back to the country's top leadership in the same words. No mention was made of the dead Frenchmen--what significance could their lives have for the representatives of "God's chosen people"?!

The first success inspired the gangsters from the big journey, who were blessed by Tel Aviv officials for their "exploits". Zionist agents scoured Europe, shadowing and bribing and recruiting informers connected with shipments of radioactive materials. Attacks on several "targets" had to be abandoned merely because the amount of the substance being transported was too insignificant. A further four-five operations were frustrated owing to sudden changes of route. Tel Aviv once again began to display nervousness.

Finally, the terrorists got lucky, it seemed. The journey of a truck carrying uranium to Britain was reconnoitered, and the freight was big enough to merit risks. Several persons connected with the shipments were bribed.

The operation went exactly as planned. A consignment of containers stamped "highly enriched uranium" arrived in the Negev Desert. But hereupon cruel disappointment awaited the Israelis. When their scientists surveyed the contents of the containers, they discovered that they held only uranium oxide. And inasmuch as the method of its enrichment was not at that time common practice in Israel, the entire dangerous and costly operation had, it transpired, been for nought.

Meir Amit was furious. His vaunted agents had been taken in like little boys. The specialists were urgently demanding uranium, and there was none. And the entire blame for this lay with Mossad. In headquarters analysts were drawing up a plan in accordance with which it would be possible to obtain a large consignment of nuclear materials at once. Meir Amit was assured that he could count on practically unlimited assistance on the part of both the military and the diplomats. The main thing: as rapidly and as much as possible.

The idea in general outline soon presented itself: this time the victim was to be a large merchant ship transporting uranium which was to be taken to an Israeli port. The "go-ahead" for this unprecedented act of international piracy was given by the prime minister of the Zionist state personally. The Mossad terrorists were given a conclusively free hand.

#### The 'Team' Is Assembled

The detailed elaboration and performance of the operation, which was codenamed "Lead," was entrusted to Mike Binder, leader of the "Special Operations" Department. He personally chose the future performers.

Meir (Azulay) had served at sea in the past and carried out Mossad assignments. He got to know people quickly, had an excellent memory and was a past master at handling explosives.



(Shauli) Mizraki, an officer of the "Arab Department," had "worked" repeatedly along spy department lines in Near East countries. He had a brilliant knowledge of several Arabic dialects and could, if necessary, pass for an Iraqi or Syrian, Libyan or Egyptian.

Siv Biran was on board on Israeli merchant ship far from his home shores. He was sent a telegram requesting that he come to Tel Aviv as quickly as possible and wait from day to day. He had an excellent knowledge of seafaring, and in the impending operation hopes were placed in him as an experienced captain.

(Reyven) Goldman had taken part in dozens of terrorist actions of the Zionist special services since the 1940's. He had so much rich experience that he could have outdone the chief himself.

"Communications expert No 1"--this was what Benny Arnheim was called in Mossad headquarters. It was claimed that he could assemble a radio transmitter from an ordinary matchbox and hairpin in 5 minutes.

And, finally, the sixth--the unprepossessing, puny-looking Gad Ullman was a very high-ranking and well-paid official in the civil service. But he was also the most fearsome person of the group chosen by Binder. None other than the Mossad leadership knew that he also had a second "profession"--assassin. When he was offered a "job," Ullman's face was lit up by a happy smile.

Having completed the selection of the performers, Mike Binder left for Brussels. A squalid little house in a suburb of the Belgian capital was the location of a secret address of Israeli intelligence, where Binder met an attractive young woman of the name of Sharon Manners--his agent. Binder began the conversation without any preliminaries:

"Consider, this job is possibly the most important of those in which you have participated. Your assignment includes close acquaintance with a person with an important position in Euratom with access to information concerning the shipment of nuclear materials. Here is a file on three of them."

Manners quickly glanced through the papers and photographs and put one folder aside: the Italian Antonio Bordini, assistant director for supply control.

...It was a dull day in the Belgian capital. Bordini, as always, drove to work in his brand-new Alfa Romeo. Leaving the car in the parking lot, he entered the Euratom building and went up to his office. A few minutes later a red Renault drove into the parking lot; behind the wheel was Sharon Manners. She drove up to Bordini's car, turned around and put the Renault sharply in reverse. There was a crunch of metal.

The guard, who until then had been dozing in his glass booth, ran up. Manners did not deny her blame and stated, showing the guard her papers, that she was prepared to make good the damage. While he was calling the owner of the damaged car, Sharon drove off, leaving with the "janitor" of the Alfa Romeo an apology note with her telephone number.

Bordini called the next day. A meeting ensued, then another. The Euratom official was charmed by his new acquaintance. And a few days later he made the acquaintance of Manners' old and good friend--"Paul"--Mike Binder. A large sum and Bordini's pro-Zionist sentiments served as sufficiently serious "arguments" for his recruitment. Part one of Operation "Lead" was completed successfully.

As of that time Sharon regularly handed over to Antonio envelopes containing money, obtaining in exchange packets containing papers, extracts and photocopies and Xeroxed copies of letters, telegrams and official communications. But Mike Binder had not yet found what was necessary for carrying out the plan.

About 6 weeks of tense waiting later Mike felt, glancing through the latest folder of copies made of documents stamped "top secret," the excitement of a hunter who has run to earth a wild animal. The papers mentioned the West German Asmara firm, which had signed a contract with the Societe Generale de (miner) for the purchase of a large consignment of uranium.

Binder was attracted to this deal particularly because a coworker of Asmara was a certain Herbert (Shultsen). In the past "friends" from the CIA had recommended (Shultsen) to Mossad as a "reliable" person who could prove useful in matters of a delicate nature. Despite the fact that (Shultsen) had been a convinced fascist and had served in Nazi Germany's Luftwaffe in the war, the Zionist services had put him on the card index and even given him the nickname "Nazi pilot".

Agreement was reached with (Shultsen) rapidly. The final details of the plan were specified, circumstances enabling Asmara in the event of a scandal to emerge therefrom with the minimum moral losses were thought up and material compensation was stipulated.

The operation was organized on Asmara purchasing 200 tons of uranium in Belgium and dispatching it on the ("Sheyersberg"), which had been chartered by (Shultsen), to Milan for enrichment and Mossad intercepting the ship with the cargo.

...A small ad concerning the sale of an auto-repair workshop carried in an Antwerp newspaper was dwarfed among the dozens of those like it. Therefore its owner, Emile Golder, was pleasantly surprised when a buyer came to see him. Paul, as he called himself, only gave the workshop, garage and yard a cursory inspection and did not haggle. But just a few hours later the attentive observer could have spotted entering the workshop gate a truck with a trailer carrying a 6-meter-long container carefully covered by a tarpaulin. Then a gray Peugeot stopped not far off out of which stepped two persons who plunged through the gate of the workshop. And about 15 minutes later a man and woman emerged from a Citroen which had driven up and headed in the same direction as their predecessors.

The "team" of Israeli terrorists had assembled: Mike Binder, Sharon Manners and four of the six.



## The Raiders Had Competition

Meir (Azulay) and (Shauli) Mizrahi were in Marseille. There they had to get on board the ("Sheyersberg") with forged papers, reach Antwerp, where loaded in a container onto the ship would be their "colleagues," then free them on the open seas and seize the ship. However, the operation had somehow become known to the mafia, which had decided to take possession of the precious cargo itself. Possibly for resale to Israel, but perhaps having obtained an order from someone else. One way or another, both saboteurs were intercepted, and their mutilated bodies were subsequently found on a Marseille garbage dump, while the competitors went on board the ("Sheyersberg") on their papers.

A few days later final preparations were under way in Antwerp for loading the containers with uranium onto the ("Sheyersberg"), which had arrived the day before. The moorage was brightly illuminated by searchlights, in the light of which sparkled the buttons of the port police officials surrounding the loading area. Numerous officials of Euratom's security service had taken up their positions, watching to see that no container left the confines of the port.

In the former auto-repair workshop all the preparations for the gangster action were complete. The container extricated from beneath the tarpaulin had been painted red and had all the Euratom markings. But inside it had been converted into a temporary "abode" of four saboteurs. Food, water, juice and even a small supply of whisky were to make their stay in the metal box if not pleasant, then not too agonizing. Every conceivable kind of instrument, guns, tear gas grenades and radio equipment had been packed into special compartments.

Everything was ready for the start of the operation, and while awaiting the signal each amused himself in his own way. Goldman played dice with himself. Manners polished her nails. Biran dozed, slumped in an armchair. Only Arnheim, perhaps, was busy. He was checking the communications equipment one more time, "sending" the receiver over various bands.

[30 Mar 86 p 3]

[Text] III. Shadow of the Nuclear Threat

Suddenly Arnheim pricked up his ears. Picking up some instrument, he switched it on, peered anxiously at the dancing pointers and headed for the truck. He surveyed it rapidly, then turned his instrument toward the Citroen standing alongside, opened the doors and began probing the seats. Beneath the rear seat he discovered a small box, tore off its lid, turned something there and only then began to say:

"A transmitter. Someone has been listening to our conversations and has followed Mike's movements in the Citroen. We have been tracked down."

Mike recovered his wits faster than the others. He quietly issued a few orders and put out the light, leaving only a small lamp burning in the workshop.

"Guests" were not long coming. There were six of them also. The silent clash in the dark lasted a matter of seconds. The dull thud of shots from guns with silencers, dim flashes, death rattles--this was all that told of what had happened. Seven corpses lay on the battlefield: all six attackers were killed, and the Mossad liaison, who had arrived at the height of the skirmish, was dead from a stray bullet.

...The truck bearing the Euratom emblem and the appropriate kind of container aroused no suspicions. No one had the least inkling of what the "foundling" could prove to be.

The next truck drove up. Its driver and Mike Binder, who had jumped down from the cab, neatly hitched up its ropes. A few minutes later the "Trojan horse" was in the holds of the ("Sheyersberg").

#### Robbery at Sea

On 17 November 1968 at 0548 hours the ship was given authorization to sail. At 0600 hours the ("Sheyersberg") cast off its moorings, giving the port a farewell blow on the horn.

All was as yet going smoothly. But experience of terrorist activity suggested to Binder that surprises are usually unpleasant and occur when they are least expected. And he decided to take additional precautionary steps which had been discussed in advance at the highest level.

Calling at the Israeli Embassy, Mike presented his credentials and demanded to be connected with the commander of the Israeli Navy. He uttered over the embassy radio the coded phrase in accordance with which the latter opened a secret package bearing the prime minister's seal. Having read the instructions contained therein, the old sea dog drew in his breath in amazement and admiration and thereupon issued the necessary orders. The Israeli Navy was put in a state of combat readiness in order following receipt of the signal to suddenly attack a peaceful ship on the high seas, destroy with aimed fire the radio mast to prevent the possibility of an SOS being given out and then, threatening the use of guns, seize the cargo.

This was a plan of an unprecedented brazen piratical attack and an act of international terrorism. But this did not disturb in this least a state which had adopted it in its foreign and domestic policy. And the fact that the attack did not take place was simply a matter of chance. The four Israeli saboteurs succeeded in "doing the job".

The day following departure, at 0010 hours, the terrorists heard above them cautious steps and hushed voices, which would approach and then move away. Someone was carefully investigating the hold. Who? Their friends? But, first, their release had been planned only for the following night and, second, their accomplices were to have given a prearranged radio signal, but Benny Arnheim had heard nothing, even though he had been listening constantly on two frequencies.

In the daytime, when all was quiet, they held a meeting and decided not to risk getting out of the container with their own powers. They cut out a hole with an autogenous welder and prepared themselves. In the evening the hatch cover was opened yet again. Two figures, clearly visible against the bright background, appeared. Gad Ullman could wait no longer: with a sensual smile he directed at the strangers the barrel of his Magnum with the silencer attachment and opened fire. Yes, these were the instants of his greatest delight--the moment of murder.

The four armed gangsters, who attacked suddenly, had no particular difficulty in seizing the peaceful ship, for which this trip was only a normal voyage with cargo. Submitting to the order, the ("Sheyersberg") put up in the small bay of an uninhabited island, where with the help of window dressing and paint it was converted into the "Kerkyra" with a different configuration and coloring.

Under the Liberian flag the "Kerkyra" entered the Israeli port of Haifa late in the evening. It was expected, and it was urgently led off into a secluded dock, around which a reinforced guard was immediately posted. And the following night the former ("Sheyersberg") left Haifa with lights extinguished and headed for the Turkish port of Iskenderun. It arrived there a day later. Having undergone the customs formalities, the team, at full strength, left the ship, whose holds were empty, and went into the city.

#### Who Killed Karen Silkwood?

The American Karen Silkwood had dreamed of a career in science. She had been involved in science, but marriage and the birth of a child, which are natural for every woman, had torn her away from her beloved work. Therefore when, in 1972, she succeeded in finding a job as a lab technician at a uranium-enrichment plant of the Kerr-McGee Corporation not far from Oklahoma City, she considered that it was her great good fortune. And she would have continued to work there so long as the corporation was satisfied with her work were it not for....

In 1974 Karen called attention to a whole series of accidents on the job. And inasmuch as she was not indifferent to the fate of her comrades and had already become a union activist, Silkwood took up this question. Her comrades trusted her, and she was soon elected to the supervisory council of the local of the International Oil, Chemical and Atomic Industry Workers Union. It was then that she began the investigation in earnest.

Surprising things came to light. In a few months she had in her possession a thickish file containing evidence not only of a disregard for equipment safety rules at the enterprise, fictitious analyses of radioactive fuel and forged documents concerning its quality but also of the puzzling disappearance of plutonium from the plant.

A few words should probably be said about the Kerr-McGee Corporation, where Silkwood worked. In the United States it is called a "giant" of the energy industry, which has for more than half a century dominated the business and political world of the state of Oklahoma.

And Karen Silkwood discovered the secret routes by which the plutonium was leaving the United States. And it was taken directly to the nuclear reactor in Dimona. She had seemingly gotten too close to the carefully protected secrets of the Zionists and the Pentagon. For this reason she had become for them a "dangerous witness". The more so in that it had become known from telephone conversations bugged by the special services that Silkwood intended meeting with an official union representative and a NEW YORK TIMES correspondent. Karen assured them that she would talk not only about "the strange happenings and goings-on" at the plant of the Kerr-McGee Corporation but also back up her story with the irrefutable documents in the file which she had compiled.

This communication was the final straw following which it was decided to "remove" Karen. Everything had been precisely calculated. She had to drive only 30 miles (1 mile = 1.6 kilometers) to the place of the meeting, but Silkwood's car did not get one-third of the way even. Losing control, she sped down the highway embankment and smacked into the concrete wall of a viaduct. Karen died instantly, and pages of the file were scattered in the red Oklahoma dirt. The state highway police officer who was the first to arrive at the scene of the accident indicated in the report that he gathered up the papers and put them in the trunk of the totaled vehicle. But, however, the next day these papers were not there: they had vanished without trace.

The FBI hastened to declare that Silkwood was a drug addict and that the accident had occurred through her own fault after she had taken a drug overdose. The questioning of witnesses who had known Karen and the results of the autopsy refuted this statement. Then came something new: the car had not been serviced in a long time, and as a result the steering mechanism had failed. Experts who inspected the automobile did not agree with this assertion by the police either.

More, they expressed the belief that the catastrophe had occurred as a consequence of "a heavy hit in the front left door from the outside." There were also witnesses who declared under oath that on 13 November 1974 on Highway 74 the car driven by Karen Silkwood was being pursued by an unknown automobile with four men inside. It was clear: it was no accident but a cold-blooded, calculated murder.

The U.S. Justice Department "responded" to this evidence in its own way. The case was ordered closed and all material of the investigation consigned to the archives. Silkwood's friends and colleagues, who have managed in this time to unearth many details, have not succeeded in finding the murderer, although they are firmly convinced that behind this crime against the union activist stand the special services of the United States and Israel.

#### Fruits of a Dangerous Alliance

...On 22 September 1979 at 0300 hours local time an American a U.S. Air Force Vela reconnaissance satellite in the South Atlantic-Indian Ocean region registered a double light flash. Both the CIA and the Pentagon concluded that this was a test of a 2-3-kiloton nuclear bomb. And citing informed

sources, the British television program World in Action claimed that a nuclear device developed and manufactured by Israel in conjunction with South Africa had been exploded over the Kalahari Desert.

Thus culminated the racist-Zionist nuclear alliance which had emerged back in the mid-1960's. There had been a number of meetings at that time of high-ranking Mossad representatives and their colleagues from South Africa, in the course of which the need for the creation of a Tel Aviv-Pretoria "nuclear axis" was recognized. This agreement acquired new directions in all subsequent years, and ultimately the roles were allocated thus: Israel made available to South Africa nuclear technology, technical personnel and nuclear weapon delivery systems developed with the assistance of Western, primarily American, allies or stolen from them; in turn, South Africa supplied uranium to the Zionists and also, inasmuch as difficulties had arisen for the latter concerning the territory where nuclear devices might be tested, made available to them a proving ground, more precisely, Africans' land.

The first fruit of this dishonorable alliance was the testing of a jointly manufactured bomb at the end of 1979. Today, however, we may assert with confidence the following. Both countries have nuclear weapon delivery systems: jet bombers, missiles and 155-mm howitzers. Both Tel Aviv and Pretoria have nuclear reactors operating on uranium suitable for the production of nuclear weapons. As far as arsenals thereof are concerned, nothing can be said about them with complete certainty, naturally. Reports testifying to the existence of such filter through into the press now and again, it is true. Figures are cited--from a few warheads to 200. This is understandable: such information is in the category of the most guarded state secrets.

But ultimately it is not a question of how many bombs and of what yield the South African racists and Israeli Zionists are prepared to drop on their neighbors, and they could do this now or in a short time. The main thing is that in their identically fascist, antihuman essence, in their assertions concerning the "exclusiveness" of their race and in their hatred of national liberation movements they are prepared to do this. Through the fault of imperialist circles and the West's monopolies the shadow of the nuclear threat today looms over the Near East and South Africa.

8850/9869

CSO: 5100/13



USSR

# TASS CITES U.S. REPORT ON NEED FOR U.S.-USSR INTERACTION

LD042037 Moscow TASS in English 1952 GMT 4 Apr 86

[Text] Washington 4 April TASS--TASS correspondent Igor Borisenko reports:

Interaction of the USA and the USSR in the consolidation of the nuclear non-proliferation regime is desirable and possible. This report entitled "Blocking the Spread of Nuclear Weapons: American and West European Perspective" which has been drawn up by influential public organisations: the council on Foreign relations and the Centre for European policy studies.

Calling for the consolidation of the nuclear non-proliferation regime, the authors of the research emphasize that both the USSR and the USA are interested in preventing the spread of nuclear weapons. Even in the times when relations between the two countries were strained, the Soviet Union strongly declared in support of the non-proliferation regime and was manifesting the readiness to hold consultations on these problems, it is stressed in the report. The authors of the report believe that interaction of the USSR and the USA in the matter will make it possible to keep the door open for a Soviet-American dialogue on other important matters, specifically on problems of nuclear arms control. It is emphasized in the survey that a comprehensive test ban would be a considerable contribution to the consolidation of the nuclear non-proliferation regime.

At a press conference in connection with the publishing of the report, former head of the U.S. delegation to the Salt-1 talks Gerard Smith emphasized that ending of the arms race and ban on nuclear tests would be the only reliable barrier to nuclear weapons spread. He criticized the non-constructive stand of the U.S. Government in the matter of the moratorium on nuclear explosions. In this connection he declared that the Star Wars programme is the main problem blocking progress at the talks on arms control. The programme contradicts the aims of nuclear non-proliferation, he said.

/12913

CSO: 5100/14



FRANCE

BRIEFS

NUCLEAR REACTOR ISSUE--Paris, April 22 (AFP)--France has proposed resuming discussions with Israel on supplying a nuclear reactor, on condition that Paris is allowed to replace a reactor in Iraq destroyed by Israel in 1981, informed sources said here Monday. The Israelis destroyed the French-built Osirak reactor of Iraq's Tamuz-1 plant on June 7, 1981, fearing that Iraq had the potential to develop a nuclear bomb. Mr. Peres, who arrived here Monday, would not comment on the report after he held talks with Prime Minister Jacques Chirac. The sources noted that the French proposal, in addition to political considerations, would pose financial problems. [Text] [Paris AFP in English 0653 GMT 22 Apr 86 AU]

/9716

CSO: 5200/2678

SWEDEN

#### NUCLEAR REGULATORY AGENCY REPORT: SAFETY RECORD GOOD

Stockholm SVENSKA DAGBLADET in Swedish 24 Dec 85 p 6

[Text] Increased proficiency and measures improving safety at Swedish nuclear power plants mean that the risk of serious nuclear accidents is now considered to be lower than it was felt to be in the evaluations made at the end of the 1970's.

On the other hand, the probability of a serious accident has not dropped so low that the possibility of a serious breakdown can be ignored.

So writes the Nuclear Power Inspection Board (SKI) in a report to the government concerning the risk of radioactive releases during serious nuclear accidents. The report also recommends improved protection at the nuclear power plants in Ringhals, Oskarshamn, and Forsmark.

#### "Know More"

According to the TT [PRESS WIRE SERVICE, INC.], Lars Hogberg, a manager at the SKI, commented on the report by saying: "The probability of a nuclear accident has dropped. We believe that we know more now than we did before."

#### Filter Installations

The report to the government also includes proposed guidelines for measures to improve safety at the nuclear power plants in Ringhals, Oskarshamn, and Forsmark. The measures are aimed at limiting radioactive releases if a big accident should occur despite everything.

It was decided in 1981 that a filter installation would be built at Barseback to reduce the effects on the surroundings if a meltdown should occur. That facility (Filträ) was completed in November 1985.

The same decision called for similar measures to be taken at the other nuclear power plants.

"And that decision still holds good," says Lars Hogberg. "But there may be smaller facilities than Filträ and combinations of various measures."

At Forsmark and Oskarshamn 3, those measures will include strengthening reactor containment. All reactors will then be equipped with safety valves having precipitation devices to limit possible releases during an accident.

#### Possible Measures

In 1985, according to the SKI, the State Power Board and the Oskarshamn Power Group reported on comprehensive studies concerning the risk of accidents and also proposed possible measures for reducing the effects of serious accidents.

Those studies have been examined by the Institute of Radiation Protection and the SKI. The report to the government also proposes requirements in connection with the technical solutions that will be produced by the power companies.

The SKI also wants the government to confirm the guidelines that have been set up. In addition, the SKI wants to study and approve technical solutions presented by the nuclear power companies in 1986.

11798

CSO: 5100/2518

SWEDEN

# WEST GERMANY'S KRAFTWERKUNION TO SUPPLY STEAM UNITS

Stockholm SVENSKA DAGBLADET in Swedish 29 Mar 86 p IV

[Article by Dag Bjerke]

[Text] West Germany's KWU (Kraftwerkunion) has been awarded the State Power Board's order for the three new steam generators for the Ringhals 2 nuclear reactor. This means that Westinghouse of the United States did not get a chance to play a return match.

The order totals 240 million kronor, about 30 percent of which may return to Sweden in the form of subcontracting. Sandvik, for example, will be responsible for the 275 kilometers (!) of finger-thin tubing with which the cans will be filled.

It was those tubes which rusted away in the trouble-causing steam generators originally supplied in the mid-1970's by reactor manufacturer Westinghouse.

"This time we chose another material for those tubes, and in addition, the critical assembly on the foundation slab is designed in a different way," says Sven-Erik Rosen, the State Power Board's project manager for the replacement.

On the question of whether Westinghouse was excluded because of poor quality or excessively high prices, Sven-Erik Rosen answered in a hesitating manner:

"We had about 20 different factors to take into consideration, and all things considered, Westinghouse did not meet the requirements."

The KWU, a subsidiary of Siemens, has about 40 steam generators of the same type as those now ordered for Ringhals 2 in service at various installations. According to the State Power Board, experience with them has been very good.

Other competitors eliminated in the bidding were Babcock & Wilcox of Canada and FRAMATOME of France.

11798  
CSO: 5100/2518

SWEDEN

# ASEA ATOM EXPECTS APPROVAL TO EXPORT NUCLEAR GEAR TO FINLAND

Stockholm DAGENS NYHETER in Swedish 9 Apr 86 p 10

[Article by Ake Ekdahl]

[Text] All indications are that the Swedish Government will approve the export of nuclear equipment to Finland if ASEA-Atom manages win such an order in competition with the Soviet Union.

Swedish legislation is quite clear on that point. Nor does the government need to fear any political storms if it makes such a decision. Only the environmental movement, supported by the VPK [Left Party-Communists] and possibly the Center Party, would protest.

Minister of Energy Birgitta Dahl thoroughly discussed nuclear exports the other day with spokesmen for the environmental organizations, and she made it clear that the government had no plans to tighten legislation.

The current deal with Finland was not discussed specifically, and no advance information has been provided to the nuclear industry by the government.

Following the referendum in which it was decided that Sweden would have no more nuclear power by the year 2010, exports of Swedish nuclear technology became as morally sensitive as arms exports.

Sweden's legislation on exports dates from 1958, but it has been revised several times, most recently in 1984, when it was tightened up with the new Law on Nuclear Technology. Now the government itself establishes all the requirements for permission to export nuclear technology. There is a list of products covered by the law.

Each case is examined individually, and that examination must take Sweden's international commitments and the risk of the spread of nuclear weapons into account. The stricter rules also cover the transfer of technical know-how.

The Center Party and the VPK had introduced bills calling for a ban on exports.

By an overwhelming majority of 249 votes to 66, Parliament rejected a law banning nuclear exports as far back as the spring of 1983. The fact that Ambassador Maj Britt Theorin abstained from voting attracted some attention.

The Conservatives are zealous advocates of nuclear exports and want to sell the Secure thermal reactor. The Center Party was willing to exchange nuclear power for petroleum in Mexico in 1980, and the Liberal Party had plans to export nuclear power to Turkey the year before that.

Swedish export deals with Iraq, Brazil, and India have also come up for discussion. As a rule, the Non-Proliferation Treaty (NPT) has blocked the conclusion of such deals.

The Center Party does not intend to push its demands for a ban on nuclear exports at present. The government feels that it has no need to be ashamed of its energy decisions and points to the law permitting exports to countries that are not controversial.

The criticism comes from the VPK and the environmental and antinuclear movement.

"How can a Swedish government support the expansion of nuclear power in a neighboring country?" asks Conservative Member of Parliament Per-Richard Nolen, an executive from Sundsvall. He wants Prime Minister Ingvar Carlsson to answer that question. After all, a Swedish government that is working so actively to phase out nuclear power in Sweden should not be helping in the sale of reactors to Finland.

11798

CSO: 5100/2518

END



**END OF**

**FICHE**

**DATE FILMED**

JUNE 19, 1986

19/6